

PERIODICAL

MAY 11, 1946

Railway Age

Founded in 1856

5

Copy

ONE MAN CAN CLOSE
HALF TON DROP ENDS!
EASILY AND SAFELY...

with

NEW

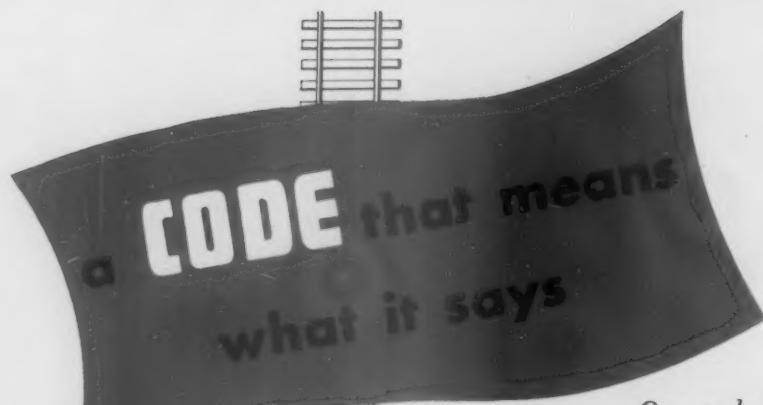
WINE

DROP END BALANCERS



ANOTHER WINE
IMPROVEMENT
FOR BETTER
RAILROADING

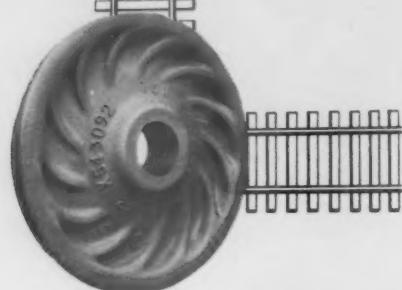
THE WINE RAILWAY APPLIANCE COMPANY • TOLEDO 9, OHIO



CODE that means
what it says



WHEEL that has
what it takes



One code binds the members of the Association of Manufacturers of Chilled Car Wheels. It applies to every member without an exception. It is a specific and carefully worked out code embodying all that's best and most advanced in chill techniques and wheel making procedures.

It means what it says. In order to retain Association standing, each member manufacturer must fully live up to it. This gives American railroads an assurance that is definitely helpful in wheel selection.

— is the aim and accomplishment of AMCCW tests as well as AMCCW standards. Knowledge of service conditions determines chill block tests, drop tests, chemical analyses, processing temperature checks, thermal tests, rotundity tests and hardness tests — all of which are requirements rather than mere recommendations.

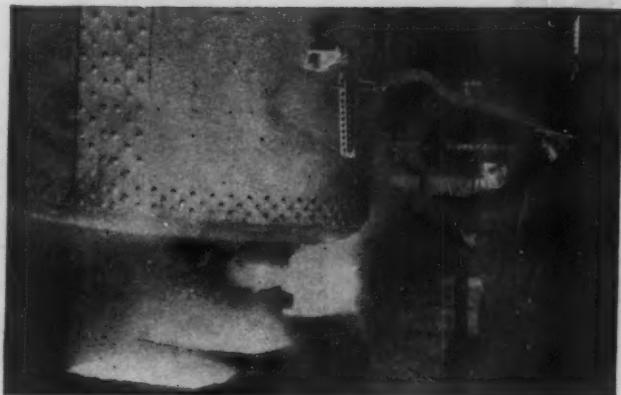
A recent depth-of-wear test for maintenance of rotundity has been added to this list. It typifies the steadily advancing standards that keep AMCCW in the forefront of railroad practice.



ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS
230 PARK AVENUE, NEW YORK, N. Y. • 445 NORTH SACRAMENTO BOULEVARD, CHICAGO, ILL.
Organized To Achieve: Uniform Specifications — Uniform Inspection — Uniform Product

4515

Quick FACTS FOR ENGINEERS ABOUT Mayari R



What is Mayari R?

A low-alloy, high-strength steel, developed by Bethlehem Steel Company to save weight (up to 40 per cent) by use of thinner sections.

What does the name mean?

Mayari (rhymes with "fiery") is the name of the mines in Cuba where natural alloy-bearing ore is mined. "R" is for "Rust-Resisting."



What are its applications?

Mayari R has numerous applications in the railway, automotive, construction and industrial fields. It is used to save weight through its extra strength, for longer life through its resistance to atmospheric corrosion.

What are Mayari R's welding qualities?

It welds as readily as plain-carbon steel, by standard methods. Doesn't tend to air-harden—needs no heat treatment.

Complete information from Bethlehem Steel Co., Bethlehem, Pa., or the nearest district office.

BETHLEHEM STEEL COMPANY, Bethlehem, Pa.



Mayari R makes it lighter...stronger...longer lasting

Serving the

Because Plymetl creates important savings in weight and cost, it has become the favorite material for partitions and doors in modern lightweight passenger cars. Lighter than hollow steel or hollow aluminum partitions, Plymetl partitions save several hundred pounds of deadweight per car. Easier to install and to finish, Plymetl saves man-hours in application. Specify Plymetl. Its advantages have long been recognized and employed by the railroads listed at the right.

Plymetl is the metal-clad plywood in a leading line of leaders. The new "Plan With Plymetl" catalog contains complete information on application, fabrication, fastening and finishing. Write or wire for copy today.

HASKELITE MANUFACTURING CORPORATION
Dept. RR-5 Grand Rapids 2, Michigan

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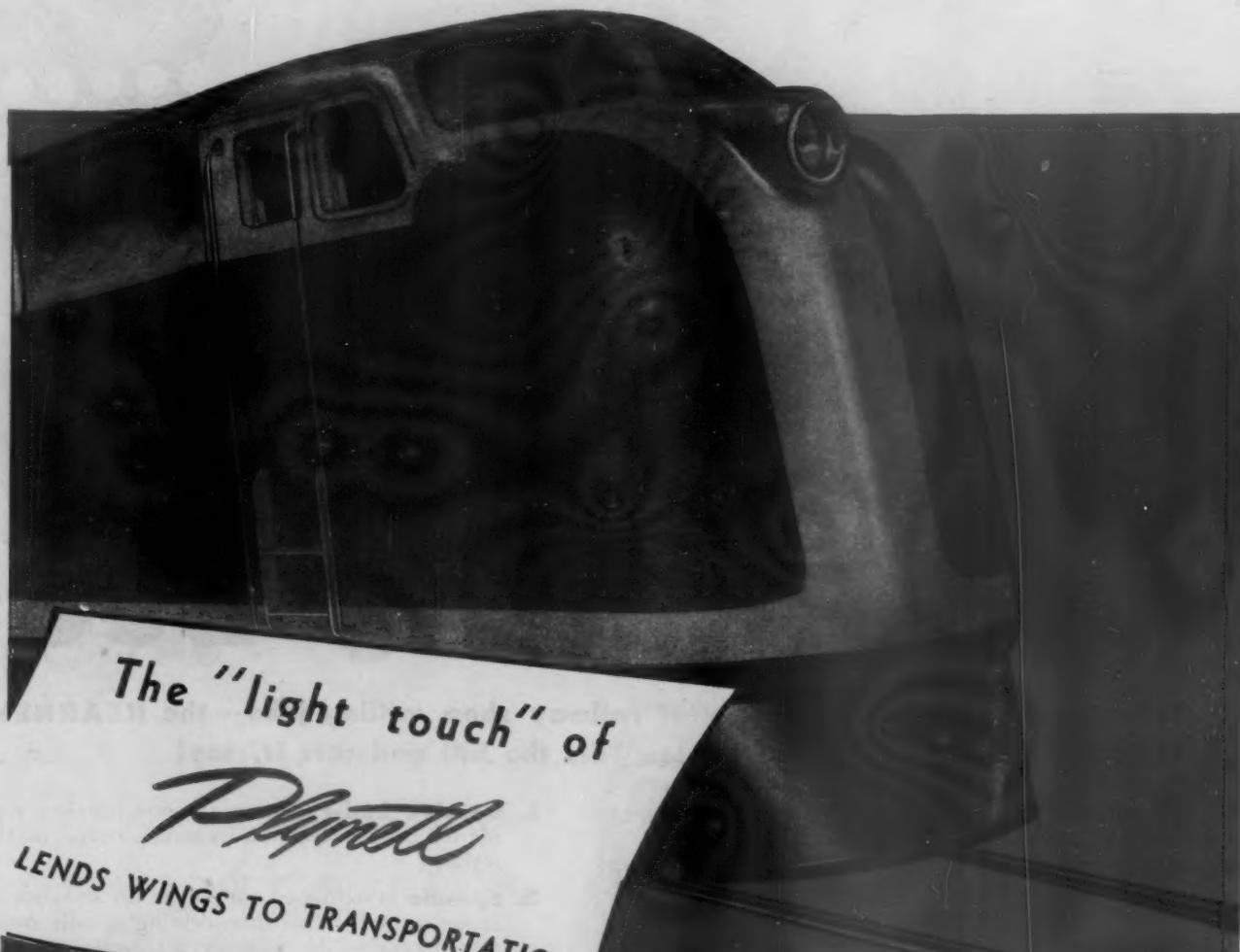
Cleveland

St. Louis

RAILWAY AGE

nation's leading railroads

The Alton Railroad - The Atchison, Topeka and Santa Fe Railway System
Canadian National Railway System - Chicago and Eastern Illinois Railroad
Chicago and Northwestern Railway System - Illinois Central System
Missouri Pacific Lines - New York Central System (Big Four) - Northern
Pacific Railway Company - Rock Island Lines - St. Louis-San Francisco
Railway (Frisco Lines) - Southern Railway System - Union Pacific Railroad
Company - Wabash Railroad Company



The "light touch" of
Plymet
LEND'S WINGS TO TRANSPORTATION

Philadelphia

Canada: Railway & Power Engineering Corp., Ltd.

Serving the

Because Plymetl creates important savings in weight and cost, it has become the favorite material for partitions and doors in modern lightweight passenger cars. Lighter than hollow steel or hollow aluminum partitions, Plymetl partitions save several hundred pounds of deadweight per car. Easier to install and to finish, Plymetl saves man-hours in application. Specify Plymetl. Its advantages have long been recognized and employed by the railroads listed at the right.

Plymetl (TRE manufactured plywood) is a leader among leaders. The new "Plan With Plymetl" catalog contains complete information on application, fabrication, insulating and finishing. Write for free copy today.

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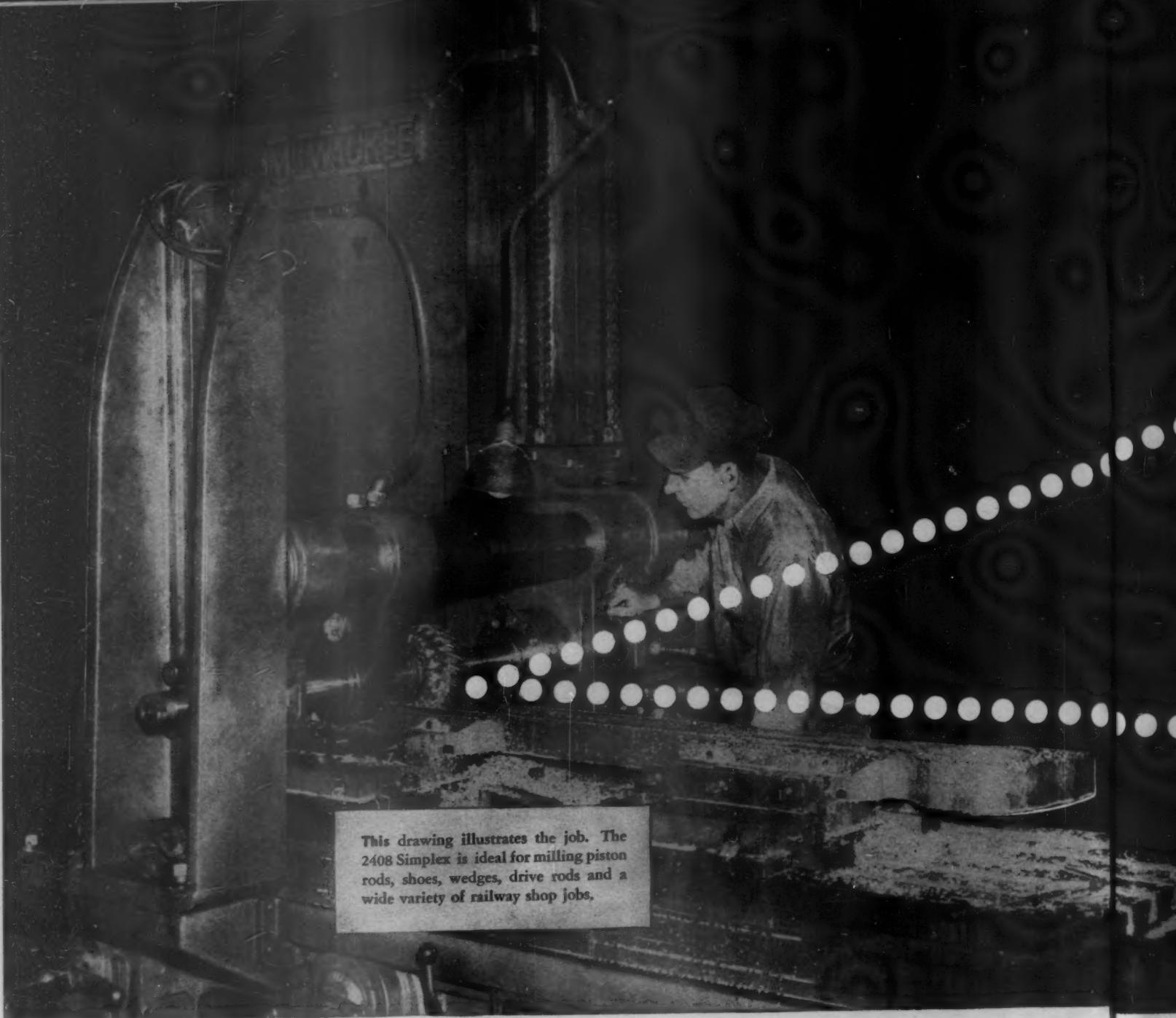
nation's leading railroads

The Alton Railroad - The Atchison, Topeka and Santa Fe Railway System
Canadian National Railway System - Chicago and Eastern Illinois Railroad
Chicago and Northwestern Railway System - Illinois Central System
Missouri Pacific Lines - New York Central System (Big Four) - Northern
Pacific Railway Company - Rock Island Lines - St. Louis-San Francisco
Railway (Frisco Lines) - Southern Railway System - Union Pacific Railroad
Company - Wabash Railroad Company



Philadelphia

Canada: Railway & Power Engineering Corp., Ltd.



This drawing illustrates the job. The 2408 Simplex is ideal for milling piston rods, shoes, wedges, drive rods and a wide variety of railway shop jobs.

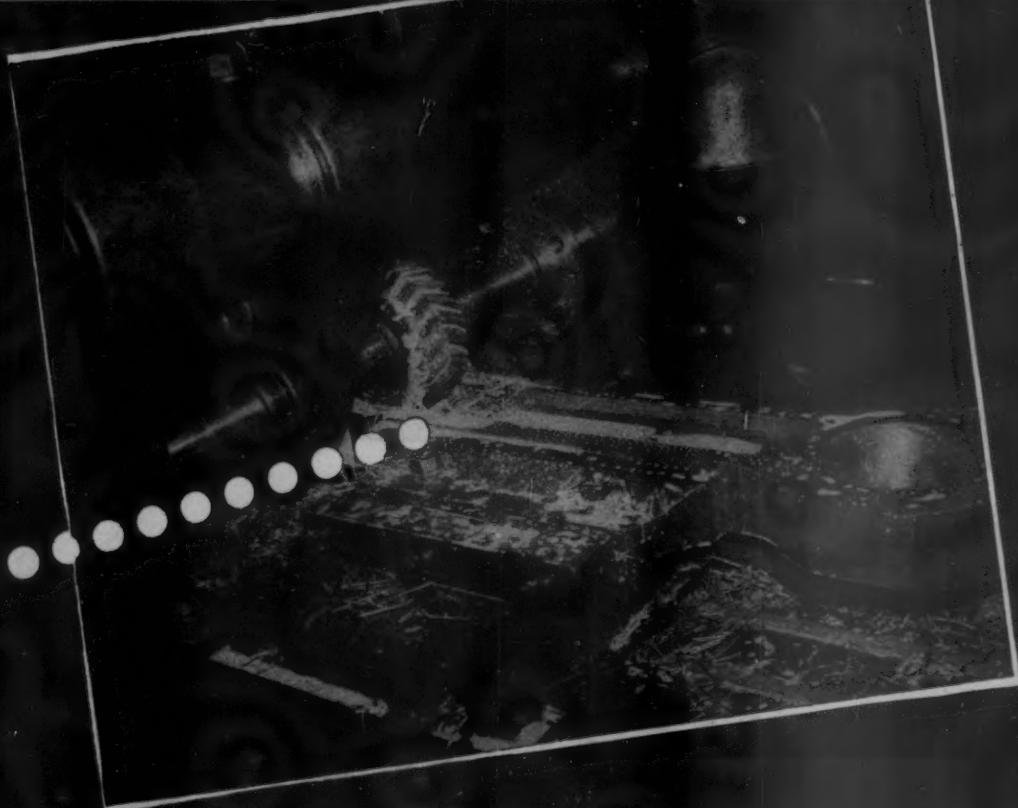
Photographs courtesy Missouri-Pacific R.R.—Little Rock Shops

Built Right to beat

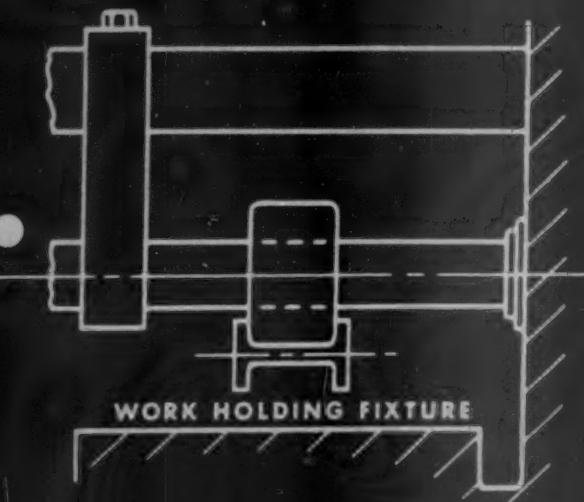
Tailor-made for a wide variety of railway shop milling jobs—the KEARNEY & TRECKER Milwaukee 2408 Simplex Fills the bill and cuts it, too!

Want the ideal machine for milling operations on piston rods, shoes, wedges, valve and reverse gear parts, drive rods and a host of other railway jobs? You'll get it when you specify the precision engineered Kearney & Trecker Milwaukee 2408 Simplex with these outstanding features:

1. **Massive bed-type** construction provides support for the table throughout its travel, assures maximum rigidity.
2. **Spindle** is supported not only at the ends but in the center as well. This three-bearing spindle construction, pioneered by Kearney & Trecker, guarantees uniform cutting at all times.
3. **Wide spindle** speed range 16 to 1000 rpm, plus a wide table feed range, $\frac{1}{2}$ " to 20" per minute, give you a combination to fit a broad variety of milling jobs.
4. **Husky** 20 hp spindle drive motor produces all the power necessary—even for the deepest bites.



This precision-engineered K & T Milwaukee 2408 Simplex is milling a channel in a tender truck side rod forged of carbon-vanadium steel.



The cutters are high-speed steel interlocking, $\frac{1}{2}$ diameter. Depth of cut $\frac{5}{8}$ " rough milling, $1\frac{1}{16}$ " finish milling. Spindle speed: 25 rpm; table feed: $1\frac{5}{8}$ ipm.

Tight schedules!

For the full story of the 2408 Simplex Machine for railway shop milling, and how it can work for you, write Kearney & Trecker Corporation, Milwaukee 14, Wisconsin.

FREE! Two of the most helpful books on milling ever published. Book 1, "Right and Wrong in Milling Practice." Book 2, "The Milling Machine and Its Attachments." Write for them today!



KEARNEY & TRECKER CORPORATION
MILWAUKEE 14, WISCONSIN

Builders of a Complete Line of Standard and Special Milling Machines



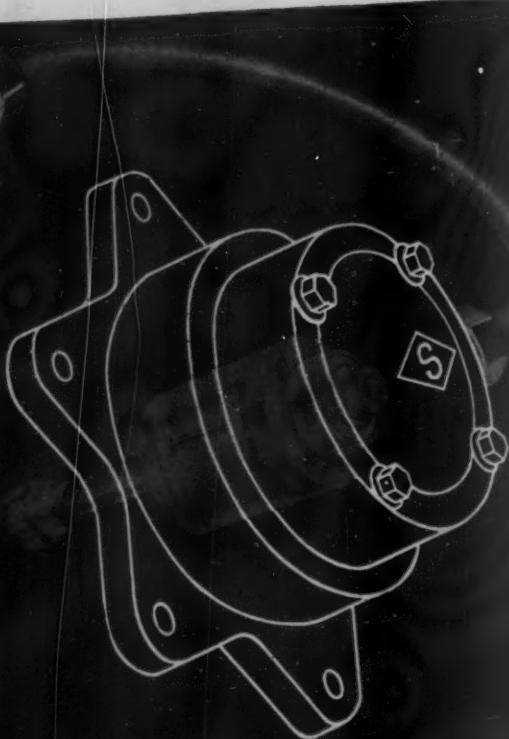
On Guard...

THE AMERICAN BRAKE SHOE CONTROLLER is a rugged, positive-acting guardian which protects against slid flat car wheels. It is reliable in its detection of wheel slippage . . . instant in its correction . . . unfailing in its restoring of full brake as soon as slippage is eliminated.

The American Brake Shoe Controller is proved by years of high speed passenger train service. Its construction is sturdy; its operation is simple and automatic. It can be checked when the car is standing or moving.



against slid flats



...the
**American Brake Shoe
Controller**

AMERICAN
Brake Shoe
COMPANY

BRAKE SHOE AND CASTINGS DIVISION • 230 PARK AVENUE, NEW YORK 17, N.Y.



1,400 ft. long station platform of Illinois Central at Champaign, Ill., was constructed in two strips with dowel joint between. Concrete was finished with wood float to insure safe walking surface.



Concrete station platform of Alton Railroad at Springfield, Ill., built by modern paving methods and designed to withstand grinding action of steel-wheeled baggage trucks.

Railroads apply **CONCRETE** paving methods for low maintenance **Station Platforms**

MODERN highway paving practices, including the use in Northern States, of air-entraining portland cement concrete, are being applied to increase the life span and reduce the maintenance cost of railroad station platforms.

State highway department specifications for concrete paving practice relating to proportioning of concrete and methods of placing, finishing and curing, have been followed in some recent platform construction.

Air-entraining portland cement was used to produce concrete highly resistant to freezing

and thawing and the action of salts used to remove snow and ice.

Latest data on construction of concrete station platforms designed to withstand hard service at *low annual cost* will be gladly furnished on request. Free in United States and Canada.

PORLAND CEMENT ASSOCIATION

Dept. 5b-26, 33 W. Grand Ave., Chicago 10, Ill.

A national organization to improve and extend the uses of concrete... through scientific research and engineering field work



Branch Lines Can Be Saved,

says
R. R. Rider

(Number four of a series)

Saw an item in the paper about another branch line giving up the ghost. Same old story — no business. That kind of thing has happened too often, and the people of a community discover too late what it means to lose a railroad which serves them. Buses and trucks can never fully take the railroad's place; sometimes they can't even begin to. If more people could realize that fact they'd see to it that their own branch lines kept going.

In one case I know of, people *did* do something about it. It was back in Pringle County, my old home. The branch line serving our little town gets business from a few fair-sized factories, besides the farmers. But a few years ago it was starving; trucks were taking practically all the traffic. Finally the road decided to abandon, but the superintendent wouldn't take it lying down.

First he went to the county officials. "Look," he said, "if my road quits you're going to lose a lot of taxes. But maybe we could keep going if you'd be satisfied with less. After all, half a loaf is better than none."

The boys at the county seat were reasonable and did what he asked. They even went further; they visited all the shippers and put on a little gentle pressure. They had a good talking point. The winter before, snow had blocked all the roads for a couple of weeks. Then the railroad was busy for awhile and the shippers were glad it was there.

"Where would you have been if it weren't for the railroad?" shippers were asked. "And can you expect the road to live for 50 weeks on the crumbs it picks up in two? We're doing our part to keep the road; why don't you help by giving it your business?"

Well, the scheme worked. That little line began to show a profit after being in the red for a long time. I suppose the fellows in the big office rubbed their eyes when they saw the figures. Anyway, the line's still there, and it's busier than it was when I was a lad.

Edgewater **Serving America's Railroads**

**RING SPRING
DRAFT GEARS**

**ROLLED
STEEL WHEELS**

**LOCOMOTIVE
TIRES**

EDGEWATER STEEL COMPANY • PITTSBURGH, PA.

Atlanta — Baltimore — Boston — Chicago — Cleveland — Kansas City — Louisville — New York
Philadelphia — St. Louis — St. Paul — San Francisco — Seattle — Washington, D. C.

BALDWIN SETS

with the new 3000 hp.



THE PACE

Single Unit Diesel-Electric

Built for the Seaboard Air Line Railway to speed perishable fruits and vegetables to northern markets, this new Baldwin Diesel packs more power than any other single unit Diesel-Electric on the rails. A number of these units have already been ordered by other roads and this power and performance is now available to all roads. Complete information available on request. The Baldwin Locomotive Works, Locomotive & Southwark Division, Philadelphia 42, Pa., U.S.A. Offices: Philadelphia, New York, Chicago, Washington, Boston, Cleveland, Detroit, St. Louis, San Francisco, Houston, Birmingham, Norfolk.



BALDWIN



Truscon Lift-Swing Steel Doors



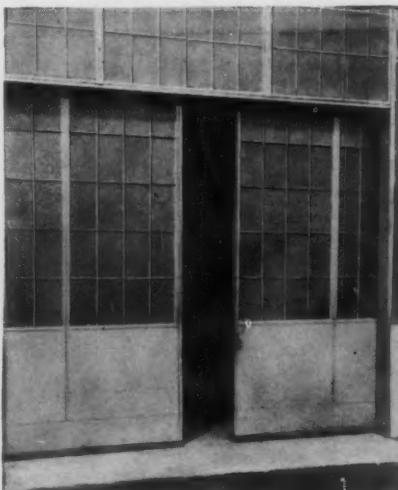
Truscon Vertical-Lift Steel Doors



Truscon Swing and Slide Light Industrial Steel Doors



Truscon Accordion-Type Steel Doors



Truscon Industrial Steel Doors
for Large Openings

TRUSCON STEEL DOORS

for every industrial need!

Illustrated here are the basic types of Truscon Steel Doors for a wide range of commercial applications.

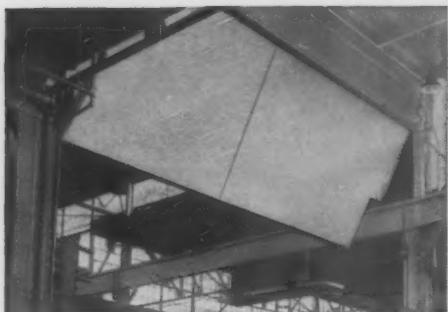
These doors embody light-weight construction of strong steels, according to designs that meet efficiently the special needs of the particular jobs for which they are intended.

Adequate stiffness without excessive weight; great torsional strength; permanent rigidity and freedom from sagging; snug fit; easy-operating mechanism for hand or mechanical power; weathertightness; long life in heavy duty—these are some of the Truscon Steel Door advantages that assure economy and satisfaction to you.

Write for catalog and ask our experienced engineer to help you efficiently adapt Truscon Steel Doors to any of your needs.

TRUSCON STEEL COMPANY • YOUNGSTOWN 1, O.
Subsidiary of Republic Steel Corporation

TRUSCON
STEEL DOORS
Help Speed the Nation's Traffic



Truscon Crane Steel Doors



Truscon Canopy Steel Doors



Truscon Turn-Over Steel Doors

WHAT'S YOUR precision PROBLEM?
—here's a "honey"
that was solved by

COLGATE

"ENGINEERED SERVICE" in
ALUMINUM, MAGNESIUM, STAINLESS STEEL



The manufacture of this Pharmaceutical curing tray may look like an easy job—but it turned out to be a "honey" that required COLGATE'S precision skill and specialized experience in working with Light Metals. The completed assembly had to be light yet strong enough to withstand considerable and continued abuse during the curing process required in the production of Penicillin.

The specifications called for the fabrication of Light Metal strips produced to a very close tolerance, in order to attain a .005" dimension for the hexagon when the assembly of the framed honeycomb was completed. The strips were accurately blanked and pierced, then bent to form one-half of the hexagon, after which they were securely positioned in a unique jig for approximately 250 spot-welds. All tooling, fabricating, and assembling operations were of a necessity held to close tolerances. Specially designed tools and dies were developed on high precision machinery of the Jig Borer type.

The manner in which these engineering and production problems were solved is a typical example of the time and money saving features of COLGATE'S "Engineered Service." This unique service offers to manufacturers design and engineering aid in the form of preliminary conferences that solve problems before designs have been started, also after blueprints have been prepared. COLGATE'S sales-minded designers and engineers will help develop your new product ideas, improve old products by substituting Aluminum, Magnesium, or Stainless Steel for other materials and give your product these sales-building features—lighter weight, added beauty, increased strength and durability, resistance to corrosion, improved product performance, lower shipping weight.

COLGATE can help solve your problems and function as your "branch factory" by providing ample space, supplying the specialized skills and know-how for fast, economical fabrication and assembling of precision parts—and get your product to market faster by meeting delivery dates with dependable regularity. For immediate action wire or write, no obligation, complete confidence assured.

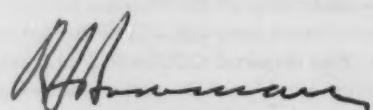
Complete and centralized facilities include this precision Jig Borer, Hydraulic Presses 10 to 750 tons, Mechanical Presses 2½ to 200 tons.

STAMPING • FORMING • DRAWING • WELDING
FINISHING • ASSEMBLING

COLGATE Aircraft Corporation
AMITYVILLE, LONG ISLAND . . . NEW YORK
LIGHT METALS PRODUCTS

TRAIN RADIO TO AID IN OPERATION OF PERE MARQUETTE'S NEW, STREAMLINED TRAINS

"By virtue of their efficient and effective performance during the war, the nation's Railroads have won the respect and goodwill of the American people. It is essential that this public esteem be maintained. That is why progressive railroad managements are planning the use of many technical developments capable of making additional contributions to the safety and comfort of rail passenger service, and why the new, streamlined passenger trains which Pere Marquette soon will put into operation are to be equipped with train radio communication systems."



President
Pere Marquette Railway Company

In designing mobile communications facilities for the nation's progressive railroads, Farnsworth has met and solved a number of unique engineering problems.

For example, before train radio could be of maximum service in streamlined train operation, new antenna techniques had to be developed. On the one hand, minimum clearance, far below the seventeen-to-twenty-inch height of the normal VHF railroad antenna, was a prime requisite. On the other hand, because human life, as well as valuable property, is involved in passenger train movements, efficiency and reliability could not be sacrificed.

Faced with this dual objective, Farnsworth engineers set to work. Creative engineering, coupled with careful field testing, resulted in the new *Farnsworth VHF train radio antenna*. Though as efficient as the taller, quarter-wave, ground-plane antenna, heretofore accepted as standard, it is only *eleven inches in height*.

This new antenna is another instance of the careful engineering and thorough research through which Farnsworth railway communications systems guarantee *maximum usefulness and flexibility with simplified, low-cost maintenance*. Farnsworth Television & Radio Corporation, Dept. RA-5, Fort Wayne 1, Indiana.

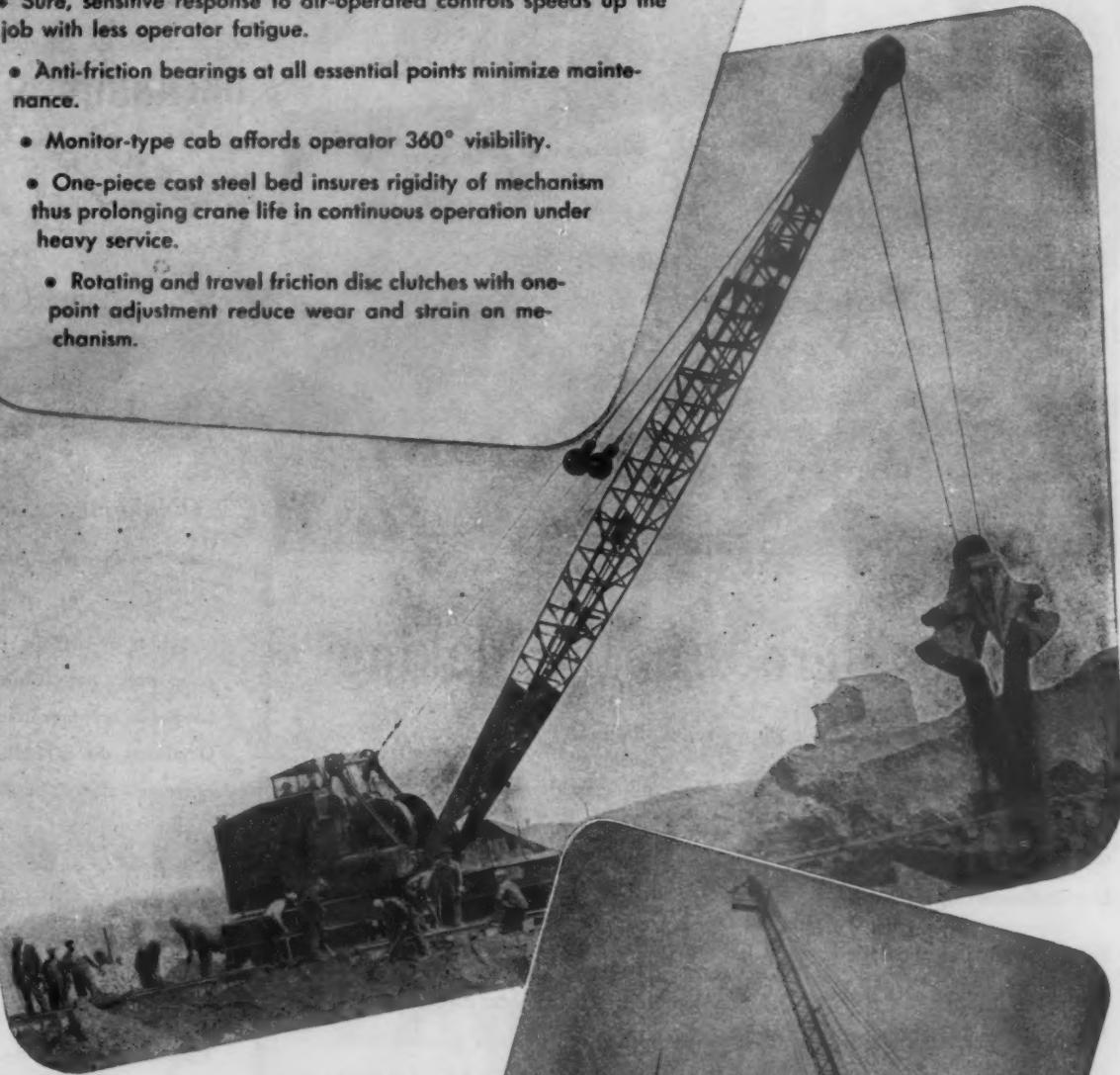
FARNSWORTH TELEVISION & RADIO CORPORATION

Farnsworth Radio and Television Receivers and Transmitters • Aircraft Radio Equipment • Farnsworth Television Tubes • Halstead Mobile Communications and Traffic Control Systems for Rail and Highway • the Farnsworth Phonograph-Radio • the Capehart • the Panamuse by Capehart

MOVE YOUR MATERIALS EASIER, FASTER, CHEAPER WITH I. B. EQUIPMENT

A few of the advantages offered by I.B. Locomotive Cranes include:

- Sure, sensitive response to air-operated controls speeds up the job with less operator fatigue.
- Anti-friction bearings at all essential points minimize maintenance.
- Monitor-type cab affords operator 360° visibility.
- One-piece cast steel bed insures rigidity of mechanism thus prolonging crane life in continuous operation under heavy service.
- Rotating and travel friction disc clutches with one-point adjustment reduce wear and strain on mechanism.



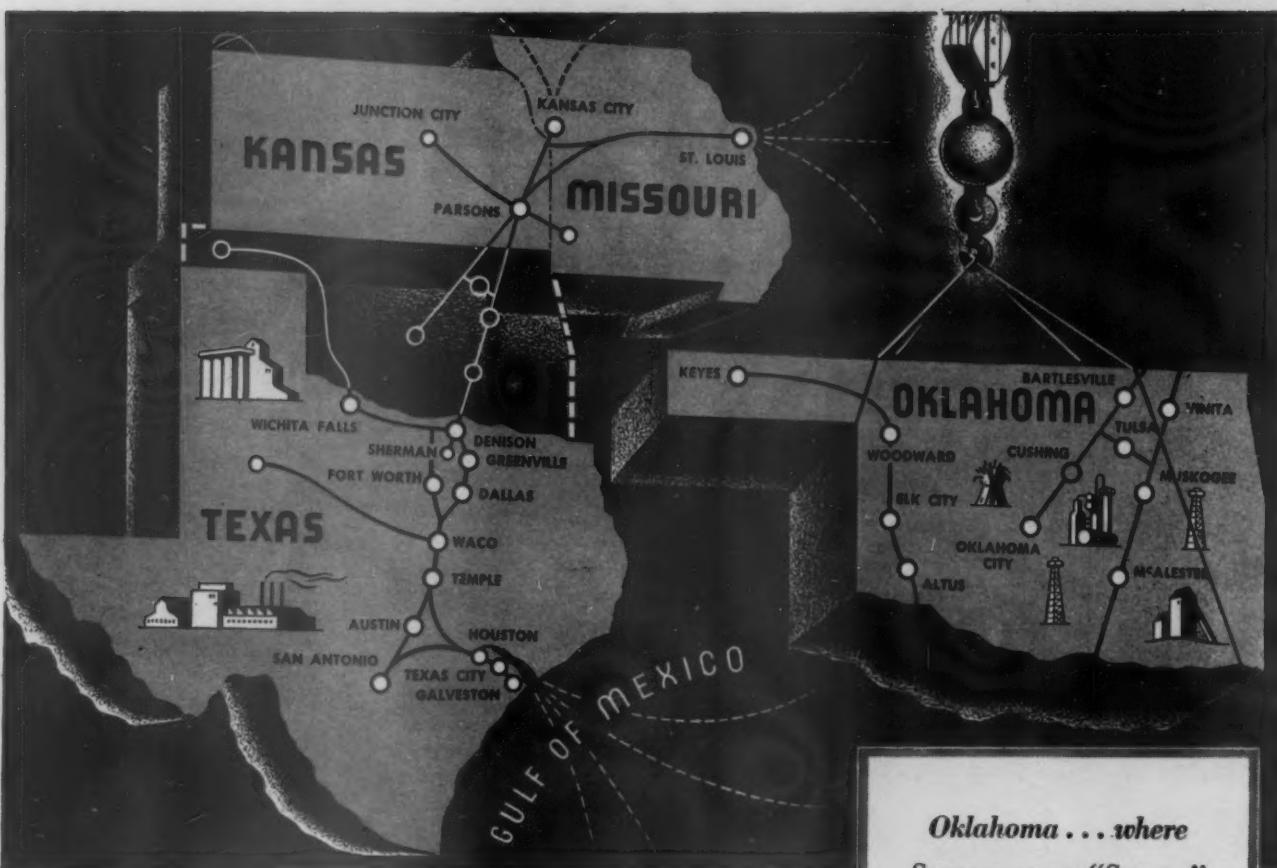
Advantages such as those listed above, engineered and built into I.B. Locomotive Cranes are typical of the design and construction superiority of all I.B. materials-handling equipment, including the electrically operated gantry crane pictured right. For the best possible answer to your materials-handling problems, talk things over with I.B.—first!



INDUSTRIAL BROWNHOIST BUILDS BETTER CRANES

INDUSTRIAL BROWNHOIST CORP. • BAY CITY, MICH. • District Offices: New York, Philadelphia, Cleveland, Chicago • Agencies: Detroit, Birmingham, Houston, Denver, Los Angeles, San Francisco, Seattle, Vancouver, B.C., Winnipeg, Canadian Brownhoist Ltd., Montreal, Quebec.





Business Hero...in the Making

The progressive business executive who reads these lines, then investigates the attractive profit possibilities of a branch or plant in the growing Southwest is a hero-in-the-making.

For as he initiates, then advocates such farsighted action he is bound to win high praise and advancement in his firm.

Nor will the Southwest let him down. For here is a land teeming with every material and facility for solid peacetime expansion—vast and varied reserves of raw materials, minerals, water, power, fuel—prosperous home markets literally popping with pent-up demand—skilled native labor sympathetic to the aims and

responsibilities of management.

Here industry thrives in an atmosphere of wholesome understanding and co-operation, among friendly people in a community which invites good living as well as good manufacturing.

Because it is the pioneer railroad which first opened the strategic Southwestern corridor to commerce and has led in its development through 75 years, the Katy is in a unique position to recommend appropriate plant sites and to furnish other timely data quickly and in confidence.

Write Industrial Development Dept., Missouri-Kansas-Texas Lines, St. Louis 1, Mo., or Katy Bldg., Dallas 2, Texas.

When you ship or travel Southwest, use Katy

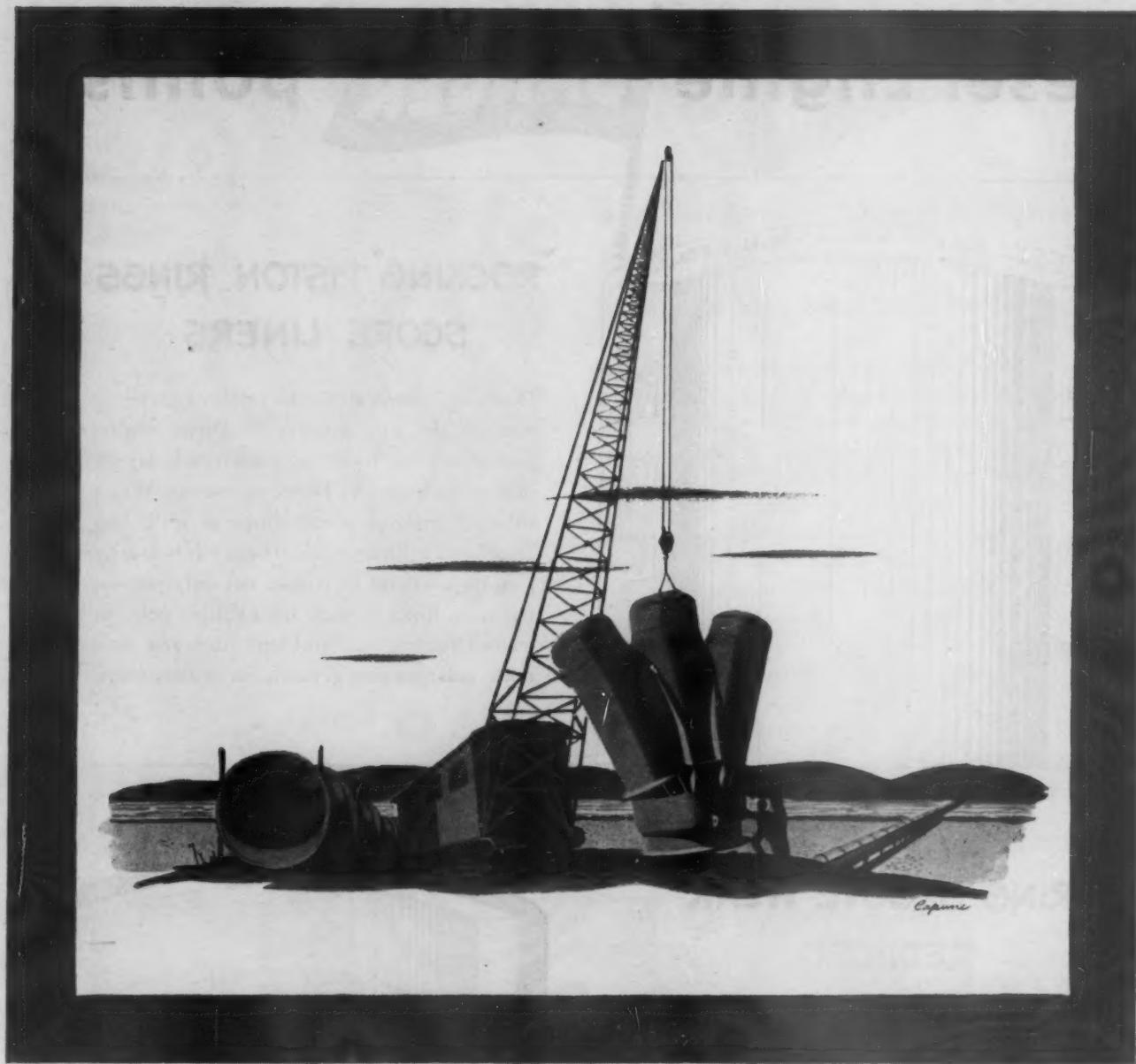
MISSOURI-KANSAS-TEXAS RAILROAD SYSTEM

*Oklahoma . . . where
Success comes "Sooner"*

Achieving within a single generation a population growth unequalled anywhere in the world, Oklahoma, the SOONER State, offers unparalleled opportunity for industrial growth. From its fertile alluvial soil spring the agricultural and mineral riches which are the envy of the world.

For a comprehensive view of this richly-endowed state and other Katy-served territory destined for greatest peacetime prosperity, send for free booklet "The Industrial Southwest."





PIPELINES OF STEEL

With its purchase of Western Pipe & Steel Company, Consolidated Steel Corporation is better equipped than ever to fill your needs for steel pipe as well as other forms of fabrication and erection.

If your current or future plans call for precision craftsmanship in steel, Consolidated's versatile engineering experience and expanded facilities stand ready to carry out your orders *immediately*.



Consolidated Steel

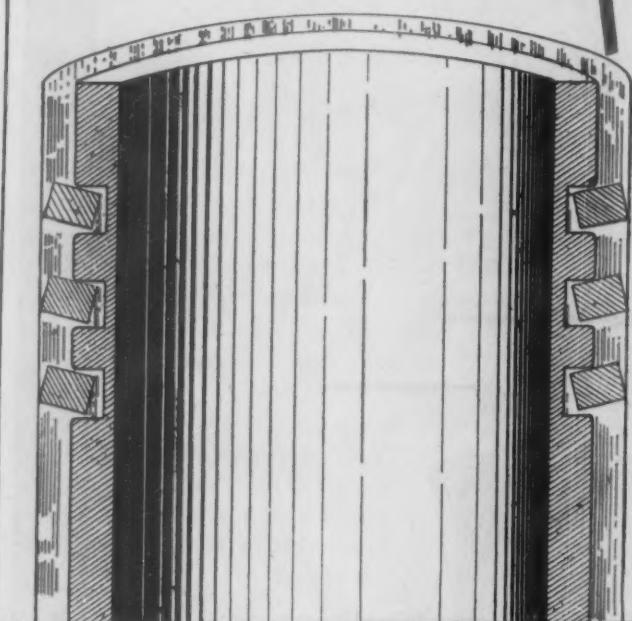
FABRICATORS • ENGINEERS • CRAFTSMEN

CONSOLIDATED STEEL CORP., LTD., LOS ANGELES, SAN FRANCISCO,
BAKERSFIELD AND FRESNO, CALIF. • PHOENIX, ARIZ. • ORANGE, TEX.

LEADERS IN THE WEST AND SOUTH

	
REFRIGERATOR CARS	STEEL BUILDINGS
	
SPECIAL STRUCTURES <i>Palomar Telescope Dome</i>	DAM TRESTLES
	
PRESSURE VESSELS	DRUM GATES

Diesel Engine DANGER points



"ROCKING" PISTON RINGS SCORE LINERS

"Rocking" piston rings, the result of excessive wear in the ring grooves of Diesel engine pistons, are the source of considerable lay-off time and expense to Diesel operators—Wear-enlarged grooves permit rings to rock, and "bite" into cylinder walls. The result is usually a costly overhaul to replace not only pistons, but worn liners as well. It's a danger point in many Diesels—but "rocking" rings and their cause, enlarged ring grooves, can be minimized.

RPM DELO Oil clings to hot engine areas often left exposed to wear by ordinary uncompounded oils.

RING GROOVE WEAR REDUCED BY RPM DELO OIL

In a series of 1000-hour laboratory tests, Standard scientists proved that ring groove wear can be minimized with RPM DELO Diesel Engine Lubricating Oil.

Piston ring groove wear in an engine operated on a top quality straight mineral oil was thirty times that experienced with RPM DELO Oil in an identical test.

RPM DELO Oil reduces wear due to a metal-adhesion additive which makes it cling to and lubricate hot engine areas other oils often leave bare, and to other compounds which eliminate stuck rings and engine deposits, prevent bearing corrosion, stop oil foaming.

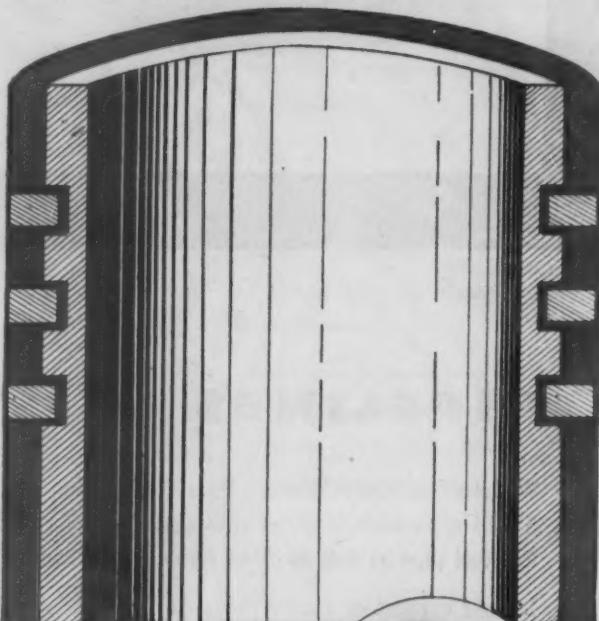
To match the fine performance of RPM DELO Oil use these equally efficient companion products from the same famous "RPM" line—

RPM HEAVY DUTY MOTOR OIL
RPM GEAR OILS & LUBRICANTS

RPM COMPOUNDED MOTOR OIL
RPM GREASES

For additional technical information write Dept. T-X, Standard of California, San Francisco 20, California, or California Commercial Company, 30 Rockefeller Plaza, New York 20, N.Y.

STANDARD OF CALIFORNIA



SIMPLEX UNIT TYPE SNUBBERS

are back!

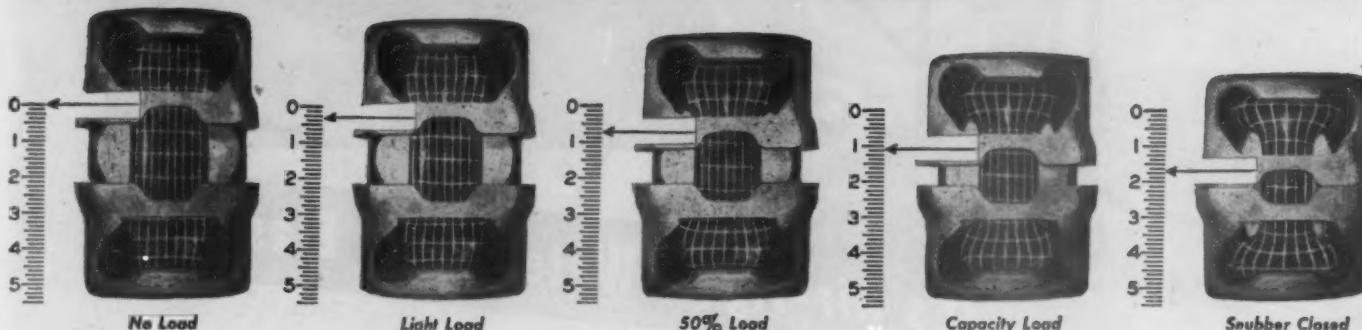


**Now That Natural Rubber Is Again Available
You Can Equip Short-Travel Coil Spring Groups
with These Long-Lived Snubbing Cushions . . .**

• If the economy of proper snubbing was ever in doubt, wartime railroading settled the question. Simplex Snubbers cushioned rough-riding coil spring action to deliver lading in better condition; cut maintenance on rolling stock and roadbed; prevented violent harmonic build-up at critical car speeds. And Simplex Snubbers matched these many economies with amazing durability in service.

Of the thousands of Simplex Snubbers in use today, every one is *at least* three years old, yet repair orders have been negligible. Simplex Snubbers combine dependable spring control with low maintenance and long life—give you the snubber performance you want in your rehabilitation work.

WHY A.A.R. COIL SPRINGS RIDE EASIER—from Light to Loaded



Although used together, Simplex Snubbers and A.A.R. coil springs serve *different* purposes. Coil springs carry the load and cushion the blows, but they tend to *recoil* almost as much as compressed, and—if uncontrolled—may develop violent harmonic resonance at certain car speeds.

Simplex Snubbers are not primarily load-carrying members. They are *control devices* which damp or *snub* coil spring movement. How they work is shown by these cut-away illustrations. White lines have been drawn on the rubber

"spring" to make its function more evident. Note how compressing the rubber affects the shape of this spring.

The complete snubber consists of but *five* pieces: two follower wedges (caps), two side wedges, and the rubber spring which, when compressed, creates side pressure at metal friction surfaces—and opens snubber as rapidly as load is released. Follower wedges are heat-treated alloy steel; side wedges a special cast iron—an *ideal* friction combination for absorbing shock, resisting wear.

LONG SERVICE LIFE

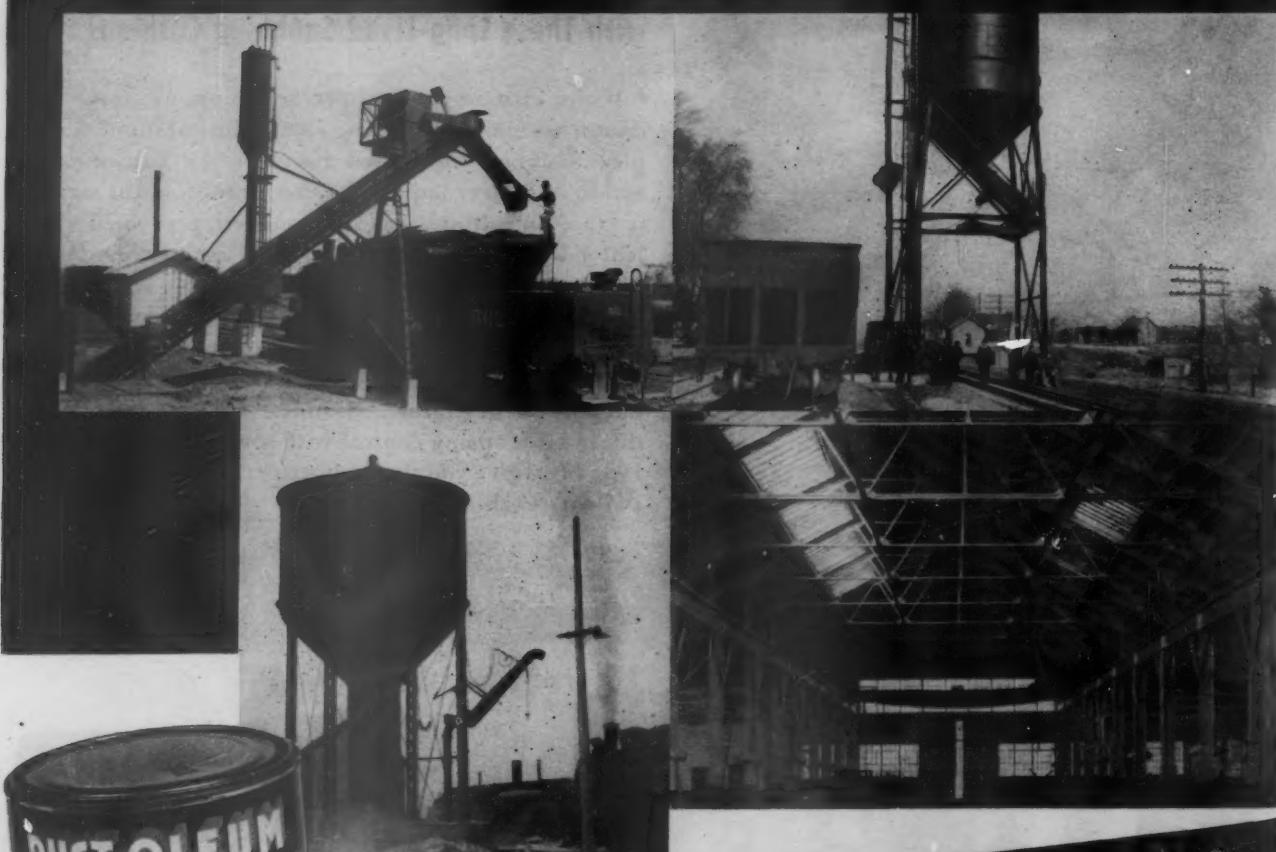
There is practically no limit to the life of the Simplex Snubber rubber spring. It is unaffected by weather, brine, sulphur drip, chemical fumes, or service loads. Used with or without spring plates. For all A.A.R. coil spring groups.

Let us give you the facts today on how Simplex Snubbers *reduce* maintenance costs, *improve* freight car riding qualities, *cut* damage claims.

**AMERICAN
STEEL
FOUNDRIES**

RUST STOPS — PROTECTION STARTS

the minute **RUST-OLEUM** covers metal



It's Air-Tight, Waterproof, Elastic!

Check These Features:

- Apply directly over any rusted surface. Simply wire brush to remove scale, blisters and dirt.
- Rust-Oleum penetrates the remaining rust and spreads an unbroken protective film over all.
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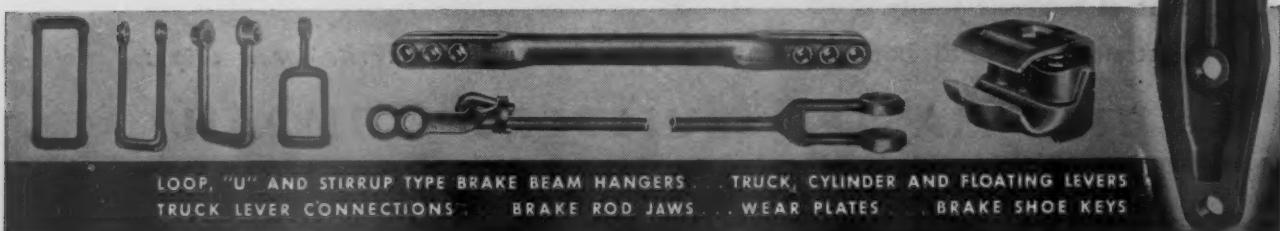
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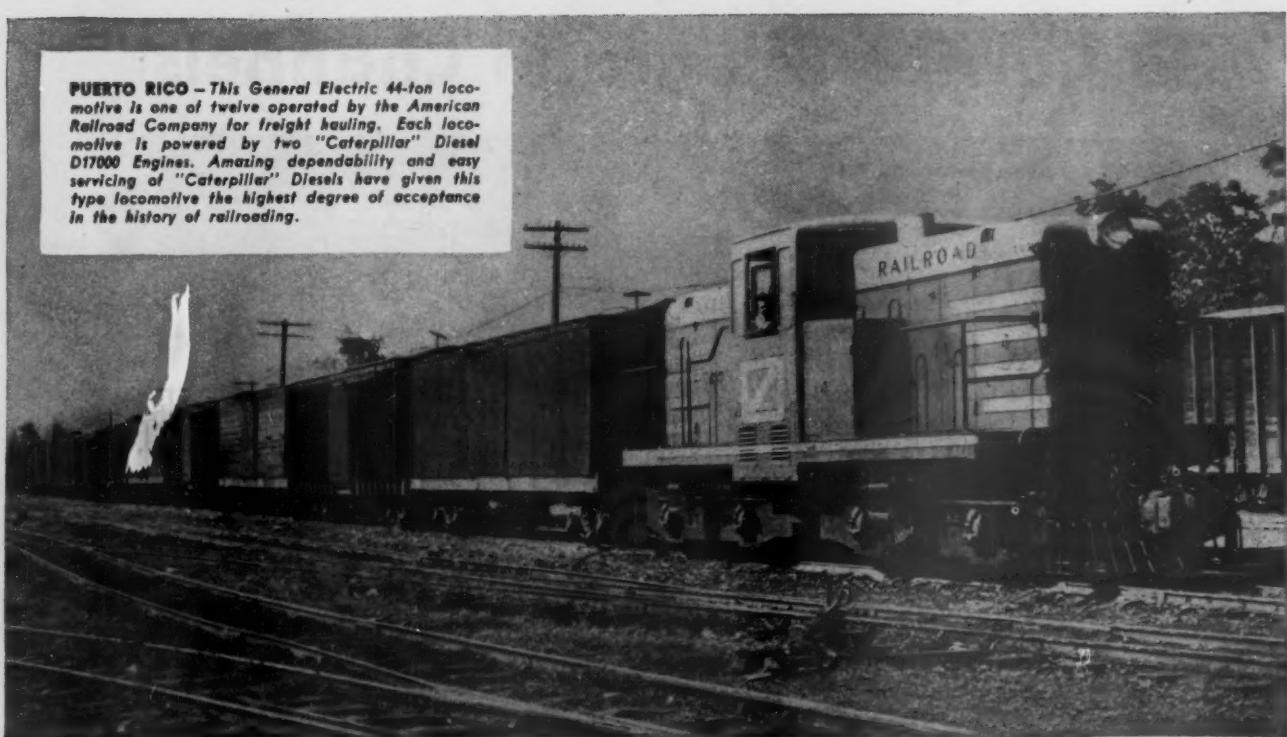


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In This Issue

Two Important Tunnels Built in 1945

The first section of this two part article describes the Bozeman Pass tunnel on the Northern Pacific between Livingston, Mont. and Bozeman. All unfavorable conditions of the old tunnel have been overcome.

Freight Cars for Economical Operation

A. F. Stubeing, High-Strength Steel Division of Carnegie-Illinois Steel Corporation, discuss the problems of dead weight vs. pay load, with lightweight materials a possible corrective.

Reconversion Rapid on the T. & P.

By October of last year, the Texas & Pacific had restored all peace-time freight schedules, was out looking for more business, and undertaking further improvement of physical plant.

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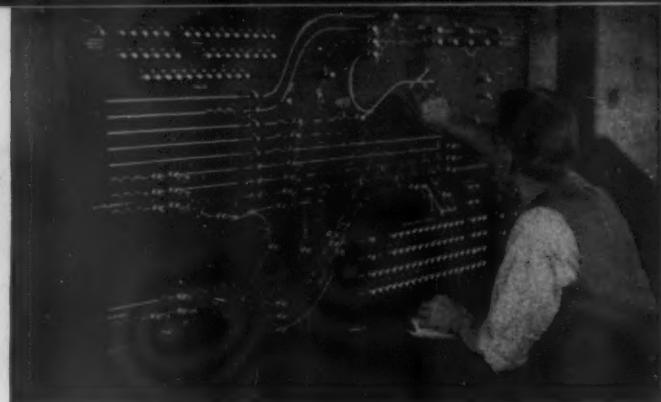
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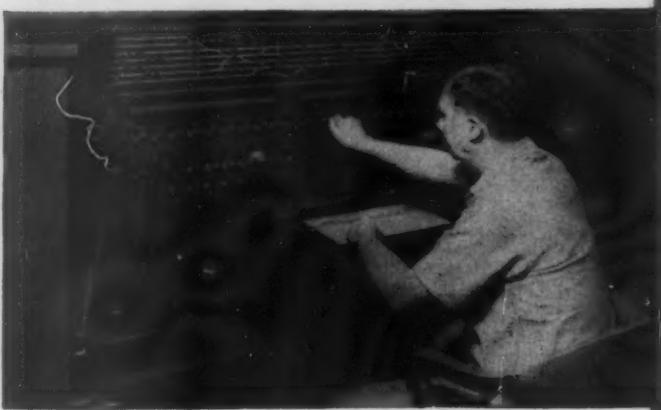
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The Week at a Glance

AS YE SOW: All the clever palliatives and alluring promises that can be concocted by the brightest minds enlisted in the promotion of presently prevailing political and economic philosophies fall short of changing the immemorial and inexorable relationship of cause and effect. The federal government quite some time ago fell into the habit of allowing a few labor leaders to resort to violence and cold-blooded, selfish defiance of juridical processes to attain their ends. The "gains" so obtained for their followers have exceeded those resulting from the orderly processes contemplated by law, thus aggrandizing the most callous and pugnacious leaders and rendering more and more insecure the position of those leaders who have exhibited some appreciation of their responsibilities and obligations to society. The leading editorial this week observes that the consequences of this attitude of government toward those who relentlessly capitalize on its lenience could only be what they have been—more bad behavior. But the question is raised whether the holders of high political office who have condoned such practices are receiving their proper share of the obloquy engendered by each day's new portents of crisis.

BOZEMAN TUNNEL: A combination of unfavorable conditions made the old Bozeman pass tunnel on the Northern Pacific main line crossing the Rocky mountains a definite handicap to efficient and regular operation. The increase in traffic resulting from the war made its replacement imperative. How this was done without interfering with service through the old tunnel is told in an illustrated article herein which describes the tunneling, timbering and lining procedure and details the specifications of this 3,015-ft. project.

RECONVERTED: One road that did not find itself short of power during the war years was the Texas & Pacific. As explained in an illustrated article in this issue, this happy situation existed in the face of very great increases in freight and passenger business, and was a result of advance planning and continuing improvement. Now that the period of abnormal traffic is over, however, there is no tendency to rest on these laurels. Reconversion to peace-time freight schedules was accomplished last fall, and plans are well along to institute new and faster passenger trains, improve the roadbed, expand the sales organization, and promote the commercial, industrial and agricultural development of the territory served.

LATER, MAYBE: Bringing its big guns into action before the Interstate Commerce Commission, the Administration has been doing its best to prevent any freight rate increase May 15. If the railroads would simply be patient—and continue to operate at a loss, paying very much more for wages and materials but receiving no more for their product than before the war—Mr. Bowles is sure everything will work

out all right in a year or two (or some time). If it doesn't, of course, and also if there isn't some other "emergency" then, the railroads might be permitted to ask for higher rates. Mr. Bowles apparently failed to explain what they are supposed to use for spending money in the meantime, but he left no doubt that the overall government policy is procrastination on rate adjustments. As the report in the news pages indicates, however, the commission, in acting on the application for immediate relief, pending full hearings, will have abundant factual evidence before it.

WHERE TO BEGIN: Barring a dramatically sudden end to the miners' strike, it is not likely that any vigorous educational measures will be necessary to convince a great many railroad employees that the regularity of their employment bears some relationship to the preservation of peace and the maintenance of operations in that one industry, at least. But the intimate connection between the size of the individual's pay check and the good health of the railroad he works for is not so decisively obvious in more normal times, evidently, as this paper's recent survey of employee opinion has clearly demonstrated. The effect on that pay check of general economic conditions, and of prevailing political doctrines and resulting public policies, all influencing the earnings and prospects of every railroad, seldom is even that readily perceived and appreciated, even in times like these, and its meaning plainly has not been brought home to the average railroad employee. As is pointed out in editorial comment this week, there are various ways available to management to bring about some profitable improvement in this situation. Among the first in importance and in promise is a determined effort to make sure that those in all degrees of supervisory positions are fully informed about the bearing of all such conditions on the welfare of the railroads, and thus on the employment they provide.

COAL STRIKE: If the prolonged strike in the coal mines has proved nothing else, it has proved that the present federal government is much more prompt in bringing essential industry practically to a halt than it is in bringing about a resumption of activity in one already tied up. The railroads have received specific enough orders concerning what kind of freight they cannot haul and how many passenger trains they cannot run, but the miners' leaders, at least up to the time this issue went to press, had been on the receiving end only of suggestions—which they showed no inclination to act on. The breadth of the embargo which the railroads were required to put into effect where coal-burning locomotives are employed, and the extent of the curtailment of passenger trains operated with coal-burning engines, are summarized in the news pages. And Colonel Johnson has pointed out that the effects of the miners' strike, even if it is brought to an end immediately, will hit the railroads hard for at least 18 months.

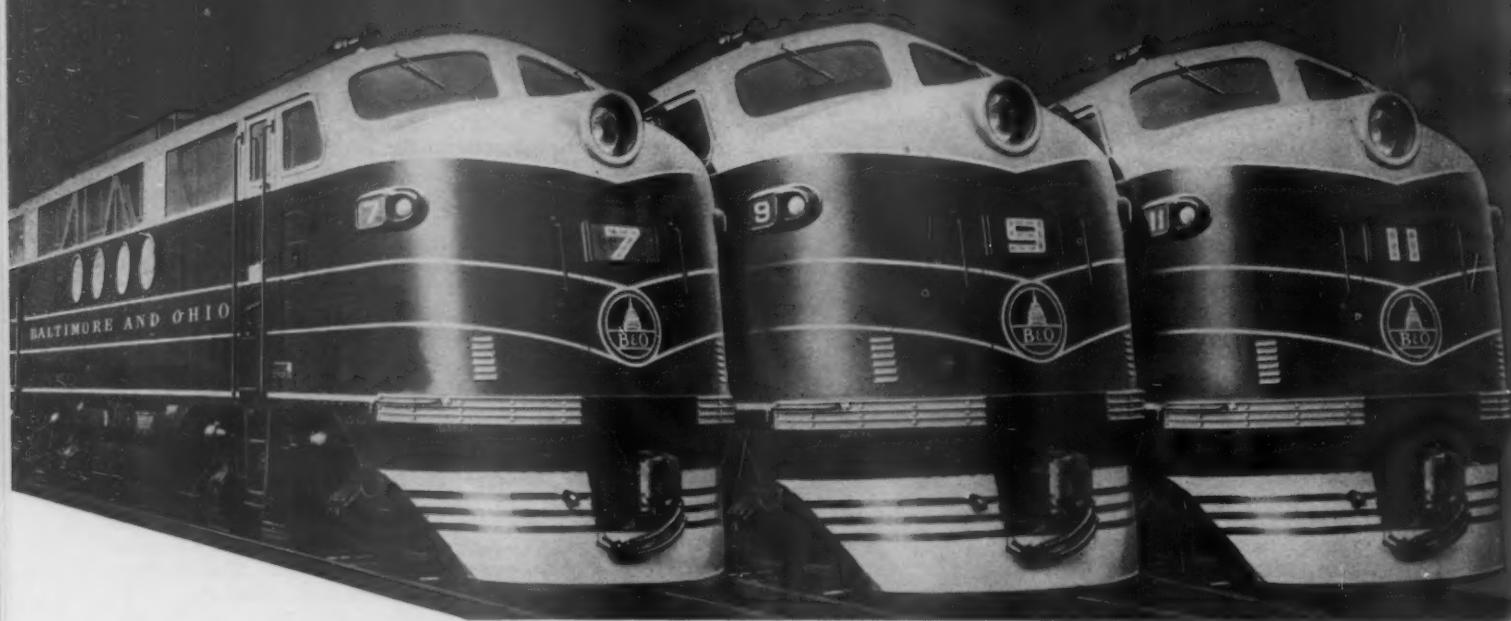
WHITNEY WOBBLIES: An account appears in the news pages this week of the final sessions of the Senate interstate commerce committee hearings on the Bulwinkle bill. One development that attracted interest was the change of front of the trainmen's brotherhood, which had favored the measure when it was before the House committee. The reason given for this reversal of view was the union's asserted fear that the system of free competitive enterprise would be endangered by the exemption of carrier joint action, under Interstate Commerce Commission supervision, from application of the anti-trust laws. Less than a week later the trainmen's president gave the press a statement calling on Congress to take over all the railroads immediately, which might seem at first glance to be a slightly peculiar way to assure the perpetuation of the private enterprise system in the transportation industry.

ENDLESS SPIRAL: When this issue went to press the trainmen's and engineers' leaders had not budged from their position that there would be a strike May 18 unless they are allowed more than the "emergency board" awarded them, and the carriers had not budged from their position that they could make no more concessions. To add to the confused condition of railroad wage negotiations, the other op unions, as reported in the news columns, have filed new "demands" on top of the retroactive increase just obtained by them through arbitration proceedings.

MINIMIZING TARE: In 1940 the average freight train weighed 2,047 tons (not including engine and tender), of which the load amounted to 849 tons. In other words, the ratio of dead weight to lading was 141.1 per cent. In 1944, under the exceptional conditions resulting from the war, not only had the gross weight of the average train increased to 2,409 tons, but the lading had increased even more, relatively, with the result that the ratio of dead weight to lading dropped to 111.7 per cent. With the restoration of peacetime practices a reverse of this trend can be expected. The extent to which the ratio now goes up will depend, it is pointed out in an article herein, on some factors beyond the control of the railroads, and on some that they can do something about, at least within limits. One of these is the use of lightweight materials to reduce the weight of freight cars.

P.A. FOR THE R.E.A.: By equipping its Long Island City, N. Y., terminal with a two-way public address system which incorporates 42 loudspeaker horns and 25 "hanging" microphones, the Railway Express Agency has added to the modern equipment with which this terminal handles as many as 120,000 parcels daily. The heart of the address system is the "crow's nest," a control room so located that the operator can give directions throughout the installation, or to selected sections, while keeping his eye on four long platforms and "docking" space for 185 trucks.

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RAILWAY AGE

Gresham's Law in Labor Relations

One of the fundamental doctrines of economics is Gresham's Law which, in its simplest form, says that "bad money drives out the good." If a debtor is permitted by law to discharge his debts with either of two forms of money, one of which is depreciated in value, then it is the depreciated currency which he will use. The type of money which has not declined in value will disappear from circulation.

Somewhat the same law appears to operate also in other departments of human behavior. Where there are no police to enforce the statutes against violence, the dominant class in the community will not be the hardest working, the most skillful, and the most thrifty—but the most violent. Thrift, production, and prosperity do not luxuriate in an atmosphere either of bad money or bad behavior. It is the function of government to banish both.

Never in the history of the country have authorities charged with law enforcement been so lenient in their attitude toward violent and truculent behavior in industrial disputes, as they have in the past dozen years. Time and again, violence and other anti-social behavior has not only gone unpunished, but those who have counseled and participated in such conduct have received monetary rewards greater than those won by disputants whose behavior has been pacific.

There are two methods of settling industrial disputes: (1) by enforced adjudication in a lawfully-constituted tribunal; (2) by allowing the contending parties to "fight it out," i.e., by strikes and lock-outs. The former method was tried in Kansas in the 'Twenties, under the so-called Kansas Industrial Relations Act, but that act was declared unconstitutional by the Supreme Court. Adjudication of these disputes by a tribunal—which, however, has no power beyond that of public opinion to enforce its decisions, is provided under the Railway Labor Act, as it was under the regime of the Railroad Labor Board which the provisions of the Railway Labor Act superseded in 1926. But the method of "fighting it out" still remains the dominant means for the settlement of industrial conflict.

Such trial by battle, however, if it is going to be persisted in, does not have to be the dangerous, frequent, and large scale affair that it has become. The practice of dueling endured for centuries without serious danger to the public peace—because the contestants were held to rigid rules of conduct and of choice of weapons; and they were not permitted to endanger the safety of any-

one but themselves. If trial by battle is to continue to be the recognized means for the settlement of industrial disputes, then the very least the authorities should do is to insist that both parties be held up to the same rigid code of behavior, with equality in weapons; and that they avoid injuring others than themselves.

Unionism That Recognizes No Authority

By the notorious Wagner Act the federal government has violated almost every known rule for minimizing industrial conflict, and for keeping the fighting civilized, with minimum harm to the public, when it does break out. Violence and coercion (e.g., sit-downs and mass picketing) go unhindered and unpunished; and employers are forced to restore strikers guilty of such behavior to their jobs. Employees are dragooned into unions which, in some instances, have been shown to have been dominated by notorious criminals. A Gresham's law has gone to work. Two classes of conduct—violent and pacific—appear to have achieved equal validity, as a matter of actual practice if not of law, and, as a result, the violent behavior seems to be driving the good into hiding just as bad money puts good money out of circulation.

This violent and wholly self-seeking unionism—which recognizes no superior authority, not even that of government itself—has become dominant throughout a large part of industry. It has not yet become dominant on the railroads. But this type of unionism has threatened to invade the railroads, and some of its spokesmen have jeered the railway unions and promised railway employees, if they would accept "outside" leadership, much larger gains than the old-line unions have attained for them. Hitler made the same promises to the German people, and for a time, he too made good on his promises.

It does not speak well for the respected railway brotherhoods that two of them have defied an emergency board decision and have called a strike in the hope of gaining by conflict what peaceful juridical processes denied them. It does not speak well for the other unions which agreed to accept an arbitration award, and immediately thereafter have demanded more. But self-sacrificing patriotism is a quality in people which is to be praised when found, rather than depended upon at all times to keep society going. While the tactics of the railway unions which are threatening to tie up rail-

road service cannot be condoned, such behavior is certainly no more culpable—and indeed is less so—than that of the political leaders who have put a premium on anti-social behavior by unions; and are, in effect, making it hard for a pacific labor leader to hold on to his job and his membership.

Tell the Employees

"Congratulations on the leading editorial in the April 27 issue (Why Not Tell Them Why They Are Laid Off?)" comments one of our readers. "The division on which I am employed has been forced to lay off a large number of men in the last two months and none of these men know the real reason for the reduction in force. In fact, some of the statements made by these furloughed employees show a real need for an explanation to be made to them by the management. Our company provided interested employees with a copy of its 1944 annual report last year, and it has been of great value to me in explaining certain questions to the public and fellow employees. Thus your cooperation to secure more information for the employees is appreciated."

Unfortunately, as clearly indicated by the Opinion Research Survey recently conducted by the *Railway Age* and its associated publications, the employees are not as well informed as they should be about the problems of the managements and the grave difficulties which they face. The writer of the communication indicates the good use that he has made of information from the annual report of his railroad. Ignorant as so many employees are of these things, it is no wonder that they can easily be led astray; little do they realize, however, how this is undermining the stability of the railroad industry and how it may eventually result in serious disaster, not alone to themselves but also to the communities in which they live. True, many railroads have made constructive and aggressive efforts to inform and interest their employees in the welfare of the railroads and undoubtedly this has had favorable reactions. The fact appears to be, however, that the surface has hardly been scratched.

Obviously no single measure can be taken that will do the job. As with the safety first movement, the problem must be tackled from every possible angle, in many different ways, and in a most determined fashion. Will all this effort be worth while? Surely, because it will make for greater and more intelligent cooperation on the part of the entire organization and will also undoubtedly be reflected in much more favorable public relations reactions. Without question there will be a dollars and cents return and the stability and prosperity of the railroads will be greatly strengthened.

One approach, however, is of prime importance. That is, the necessity, first, of fully informing and training the supervisors, from top to bottom, in order that they may be thoroughly conversant with the facts and understand how to pass them down the line to every employee in the service. After all, these foremen and supervisors are, or should be, in intimate, first-hand contact with the workers. They understand them and should be able to interpret the facts in an understandable way.

In other words, every railroad should build a strong training program for the supervisors and at the same

time have them recognize the strategic position that they occupy in the railroad organization. This is no easy problem. Fortunately, some railroads and some industries have pioneered in this field, so that reasonably sound programs and methods are available to those who recognize the necessity of doing something and will busy themselves as to where to look for assistance.

Again, however, let us emphasize that there is no panacea. The problem must be tackled from many angles and with a determination to keep at the job vigorously and continually. Properly handled, it will undoubtedly pay well in constructive results.

Superintendents of Transportation

The one-armed paper hangers with the itch were really gentlemen of leisure compared to railway superintendents of transportation during the war. Their offices resembled a madhouse, but that they were not the bedlam they seemed is attested by their success in handling vital transportation. Main trains here and main trains there, with equipment desperately short; calls for special handling of cars in order to make sailings from ports; juggling passenger equipment to make it stretch enough to go around; calls from shippers; calls from Washington; calls from the general manager—all these and dozens of other things were of daily occurrence, week after week, month after month. They were concerned in practically every railway problem, except large-scale manpower shortages, but they did not escape labor difficulties, as many of their key clerks, extremely hard to replace, were called into military service. It is no wonder that several superintendents of transportation died during the war, just as much martyrs for their country as though they had perished by enemy action on Tarawa or at Bastogne.

This panegyric as to superintendents of transportation is not intended to convey the idea that other railway officers did not do hard and effective work during the war. They did and all credit is due them also. But car shortages, when they occur, are the immediate and direct concern and responsibility of the superintendent of transportation. Not even a casual observer of the present transportation scene can fail to see the threat of a serious car shortage when the embargo ordered because of the coal strike is lifted. Moreover, if the strike of enginemen and trainmen scheduled for May 18 actually takes place, the dammed up reservoir of freight to be moved will have assumed gargantuan proportions by the time the disputes are settled.

In many ways, too, the superintendent of transportation is dependent upon other departments to carry out his orders to an unique extent. For this reason he stands in the utmost need of cooperation. Under present emergency conditions, this need is magnified a thousand-fold. Operating and executive officers must see to it that the need for efficient car handling is impressed upon every railway officer and employee. Shippers and receivers have agreed to continue to cooperate, but most of them will not feel inclined to do so if they see sloppy and careless car handling on the part of the railways.

Are Ideas Welcome?

Surveys of one kind or another seem to be in the air these days. A reader writes us that he has, in effect, made a private survey among railway and air-industry executives and officers, to whom he addressed letters containing ideas for improvements in methods or design. On the basis of the replies received, with the percentage of returns and degree of interest shown being greatly in favor of air executives, our correspondent feels that the whole thing adds up to a gloomy portent regarding the future of the railroads. It should be stated, before proceeding with the details, that this reader is a former railroad man, with many years of practical experience in track-maintenance work, whose sympathies are primarily with the railroad industry.

Having conceived an idea which he felt could be made to produce large savings in the cost of track maintenance under certain conditions, this correspondent wrote letters to 10 railroad executives and 10 railroad engineering officers, giving his estimate of the possible savings, but only hinting at the nature of the idea. Only one of the executives answered, although two others referred the matter to their engineering officers. In both cases the engineering officers sent replies, but neither indicated an interest in the idea itself. Of the 10 engineering officers who received the original letter, only five replied, and of these only one asked for additional information.

The other four replies were all of a negative character, giving various reasons for lack of interest, such as satisfaction with present performance and disbelief that the savings mentioned could be achieved.

Our investigator then wrote to 10 railroad mechanical department officers suggesting the possibilities of a certain improvement in the design of railroad cars. Seven replies were received to this letter, all requesting additional details. Encouraged somewhat by this more favorable reaction from mechanical officers, he then recalled that sometime previously he had made a certain suggestion to the air industry. Looking up the file on this matter he found that letters had been written to seven executives, each of whom had not only answered promptly, but had also requested his chief engineer to contact the man making the suggestion to obtain further information.

A Strong Indictment

With these data before him our reader has concluded that, while great progress has been made in air transportation in recent years, continued progress is assured because the top men in the industry, being dissatisfied with the present state of affairs, are "keeping their minds open" regarding suggested improvements. On the other hand, his investigations have led him to the conclusion that many railroad men, particularly executives and engineering and maintenance officers, are "too contented with their war record, too contented with the past, and too contented with themselves and their present practices and methods" to permit the same degree of progress in the railway field.

Such a strong indictment is hardly warranted by the circumstances. In the first place it is based largely on reactions received from small segments of the personnel involved, which reactions, for that reason, cannot be

assumed to be broadly representative. Also, it fails to give weight to the many evidences of progressiveness now to be seen in the railroad industry—the numerous advances in methods and in the design of materials, structures and equipment; the intensive research programs being conducted by railway engineers and others in their behalf; the employee-suggestion plans in use on many roads; and many others that could be mentioned if space permitted. Whether, in spite of the weight of this evidence, there is any truth in our correspondent's conclusion is a question that can be determined only by self-examination on the part of individual railroad men.

"Wiggle the Grates"

Bulletin boards in shops, enginehouses and crew register rooms have long been a means of conveying general orders and instructions of an official nature from railway management to mechanical-department employees and engine crews. Such bulletins are generally in the nature of orders intended to control the conduct of employees in some phase of their duties and at times they may even be educational in character. But they leave a large field of instruction uncovered; i. e., enlisting the interest of the employees in a program of performance of their duties up to the standard of their knowledge. Results in this line are not effected by official exhortations.

The instances which most readily come to mind of the use of display and the skillfully persuasive presentation of facts for the purpose of influencing the conduct of railway employees are safety bulletins, which are usually devoid of the official approach. Examples of the use of posters in which an even lighter and more unconventional touch has been employed have recently been brought to our attention. They employ color to command attention and the technique of the cartoon to plant the idea of the needed action in the mind of the reader without the psychological resistance which unconsciously follows a "lecture."

One such New York Central bulletin, under the caption, "Boy, am I burned up!" presents the problems of slipping, which "burns up rails, fuel, and *your* time," with appropriate illustrations which give point to self-interest of the enginemen in slipping prevention. The poster in this case is supplemented by a tag, also in color, which can be tied to the throttle lever in the cab. Another poster deals with "wiggling the grates," in which the practice of frequent light shaking of the grates is described and its value in preventing the building up of ash, banks and clinker formation is presented with appropriate colored illustrations. On other roads similar technique has been employed in cab bulletins vividly presenting the consequences if prompt action in accordance with instructions is not taken in low-water emergencies.

Half the problem of education or persuasion lies in finding a method of presenting instruction material or a proposal for action in a form which will arouse the interest of those to whom it is presented in the matter in hand so that they become cooperators without conscious effort. Here is a field which is always available for the useful exercise of ingenuity.

Two Important Tunnels Built in 1945



A section of the completed lining showing movable forms in place in the background

AMONG the many construction projects completed by the railroads during 1945 were two new single-track tunnels through the Rockies, one 3,015 ft. long on the Northern Pacific, at Bozeman pass in Montana, and the other, 2,550 ft. long, on the Denver & Rio Grande Western, at Tennessee pass in Colorado. Both tunnels, work on which was started in 1944, typify the latest in tunnel design and construction methods, and both replace nearby former tunnels which had heavy grades, restricting clearances, poor ventilation and linings badly in need of repair. All of these adverse conditions have been overcome in the new bores, and both are figuring prominently in improved train operation in the territories involved.

The Bozeman Tunnel

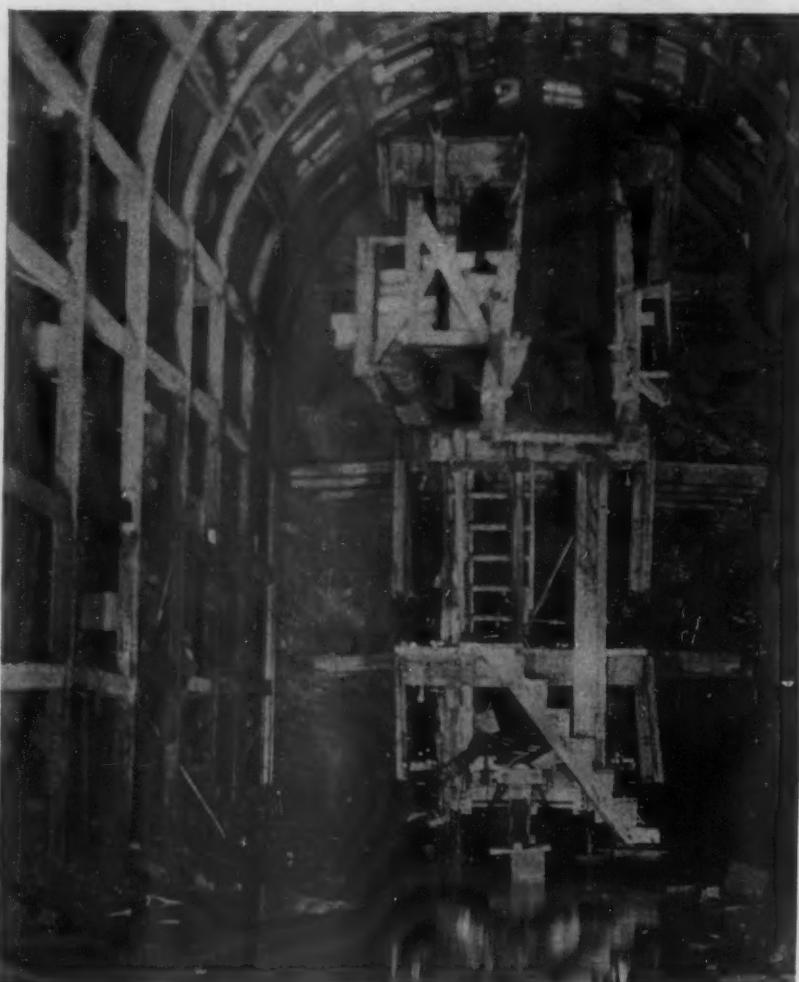
The Bozeman Pass tunnel of the Northern Pacific, the longer of the two and the first to be completed, is located on the main line of the road about midway between Livingston, Mont., and Bozeman, and extends through the Belt Range spur of the Rockies, dividing the waters of the Yellowstone and Missouri rivers. Started early in 1944, and put in operation on July 28, 1945, the new tunnel replaces an old bore, 3,654 ft. long, put through in 1882 and 1883 as the last link in the pioneer construction of the Northern Pacific.

The old tunnel was far from adequate in size for the larger power and loads of recent years, especially under the

* Part I deals almost in its entirety with the Bozeman tunnel of the Northern Pacific, in Montana. Part II, which will appear in a subsequent issue, will treat in like manner the new Tennessee Pass tunnel of the D. & R. G. W. in Colorado.

PART I*

heavy traffic conditions which prevailed during the war, and, in addition, presented adverse operating grades. Furthermore, the old lining of the tunnel, consisting of brick and of concrete made from imported Portland cement, was failing badly in sections—all of which factors combined to demand either the enlargement of the old tunnel or the construction of a new parallel bore of



At one of the headings deep underground, showing rail-type timbering used and jumbo in working position

Northern Pacific and Rio Grande single-track bores through the Rockies in Montana and Colorado, both concrete lined, improve operating conditions at strategic passes

adequate section and with improved grades.

The old tunnel had a horizontal clearance of 16 ft., and a crown height of only 19 ft. above top of rail, barely sufficient to clear the large Mallet locomotives used in this territory. Train operation produced serious smoke, gas and heat conditions in the tunnel with the passage of each train, especially since practically all trains required helper service. Grades in the tunnel started at the east portal with 700 ft. of 1.2 per cent ascending grade, followed by 1,900 ft. of 0.8 per cent ascending grade and then by 200 ft. of 0.15 per cent ascending grade, to a summit, beyond which there was 850 ft. of 0.1 per cent and 0.2 per cent descending grades to the west por-

which, with a concrete lining throughout, has a width of 18 ft., a clear height of 24 ft. above top of rail, and extends on a uniform 0.6 per cent ascending grade to the west. The new tunnel was holed through without interfering in any way with the heavy war traffic being handled by the road at the time, which amounted to more than 55 train move-

tained. At the same time, with heavy approach cuts in prospect, plus the necessity of providing favorable ventilation within the new tunnel, length of bore was an important consideration to produce the results desired, while holding construction costs to a minimum.

As a result of these considerations, a site 100 ft. north of the old tunnel was selected for the new tunnel, and a length of 3,015 ft. was decided upon, which called for 400 ft. of open approach cut at the east end and approximately 600 ft. of open cut at the west end. Even in this location, careful precautions were taken in the tunnel excavation work to avoid disturbing the old tunnel lining, including the use of as many as 13 time delays in the blasting work and careful inspection of the old tunnel after each shot, before trains were allowed to enter it.

In the interest both of adequate clearances for the largest power and high car loads in prospect and of favorable atmospheric conditions without the necessity for forced ventilation, the horizontal and vertical clearances of 18 ft. and 24 ft., respectively, were established. These, in turn, governed the size of the rough bore put through the mountain to accommodate the required construction timbering and to provide for the concrete lining.

Completion of the tunnel has brought about all of the operating advantages sought. The increased cross-sectional area has amply provided the desired ventilation; the objectionable heat and gas situation which prevailed in the old tunnel is not present in the new tunnel, so that it is no longer necessary for engineers to wear gas masks; and the improved grade has made it possible to in-



Excavating the new deep cut at the west portal



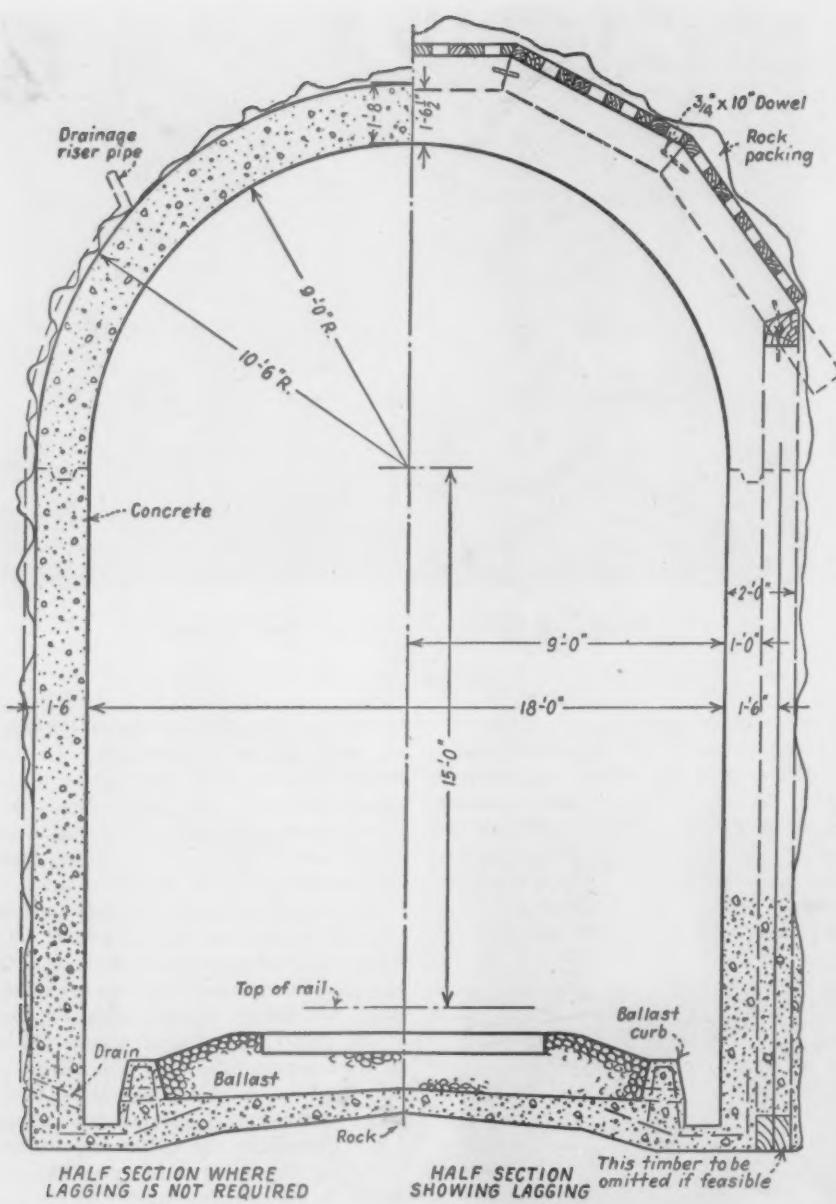
The west portal, while lining work continues within the tunnel. Forced ventilating equipment in right foreground

tal. As a result of these grades, it was necessary to work westbound engines practically throughout the length of the tunnel. Because of the adverse atmospheric conditions that resulted, the tonnage of westbound trains had to be limited so that they could pass through the tunnel in less than five minutes.

All of these unfavorable conditions have been overcome in the new tunnel,

ments daily through the pass.

Location, length and design features were all important factors in the construction of the new tunnel. Construction operations demanded that it be located far enough from the old tunnel to permit blasting without danger of disturbing the old tunnel lining, with the hazards and delays to traffic that a failure in this old lining would have en-



Half sections through new Bozeman tunnel, showing dimensions and construction used where lagging was and was not required

crease the tonnage of westbound trains to the limit allowable for the ruling grade over the district.

Tunneling Procedure

The new tunnel was driven through what is known as the Livingston formation, which, at the tunnel site, consists principally of shale and sandstone. This proved to be relatively stable material, but, with many shattered areas and numerous faults, required timbering to prevent rock falls, a situation which was particularly serious at the west end. To speed operations, excavation proceeded from both ends of the tunnel simultaneously. Tunneling was started at the east portal on February 2, 1944, and at the west portal on April 15, 1944. The east heading

was driven full size, while the west heading, owing to the heavy rock conditions encountered, was driven on a heading-and-bench system. The tunnel was holed through on November 5, 1944, at a point 2,293 ft. from the east portal.

In the east heading, drilling, scaling and subsequent timbering were done from a three-deck jumbo, equipped with hinged wing sections on each side at the different deck levels to facilitate work operations and to permit subsequent movement of the rig as a whole back into the clear. Mucking, following shooting, was done with a $\frac{3}{4}$ -yd. crawler-mounted electric shovel loading into 5-yd. Diesel-powered motor trucks, which were backed to the face along one side of the shovel.

In the west end of the tunnel, where

seamy and shattered rock was encountered, the first stage of excavation involved a pioneer drift on the center line of the tunnel at the crown of the arch, which was kept from 60 to 80 ft. in advance of two wall-plate drifts. The material removed from all three of these drifts was loaded by a $\frac{3}{2}$ -yd. Sullivan mucker and was hauled back to the point of lower bench excavation, where it was dumped into waiting trucks for removal.

When the pioneer drift had been advanced about 220 ft. and the wall plate headings about 140 ft., excavation was started on the remaining rock bench, working from a jumbo, and the loosened rock was loaded into Diesel-powered trucks by a $\frac{3}{2}$ -yd. Badger crawler-mounted electric shovel.

Timbering

Timbering throughout the tunnel was of two kinds, depending upon the conditions encountered — 12-in. by 12-in. timber sets, with five-segment arches above the springing line; and steel ribs formed from two lengths of second-hand 100-lb. rails, joined together at the crown of the arch. This timbering was supplemented by somewhat lighter temporary timbering used in the pioneer and wall-plate drifts.

Throughout the first 1,000 ft. from the east portal, timber posts and arch segment ribs were used in the timbering, generally spaced about six feet center to center, and solidly lagged across the roof and along both side walls with 4-in. by 6-in. timbers where loose rock conditions made this advisable. Beyond the first 1,000 ft. from the east end, rail-rib timbering was adopted to economize both in the overall excavation required and in the amount of lining concrete necessary to fill in the larger areas where timber was employed, and this type of construction was continued throughout the remainder of the tunnel, except at the west end, where the unstable rock encountered prevented full-face excavation. At the west end, temporary timbering of 10-in. by 10-in. posts and caps, with 4-in. by 10-in. lagging, was set in the top center and wall-plate drifts as soon as mucking was completed following each shot, while timbering of the roof was done subsequently with five-segment arches of 12-in. by 12-in. timbers, supported on 12-in. by 12-in. timber wall plates and plumb posts.

Plans from the start called for a full concrete lining within the tunnel, with a concrete curb and ballast-retaining wall on each side and a concrete paved invert throughout. The side walls were designed to have a thickness of 18 in. where the rail sets were used for timbering, which was increased to 24 in. where timber sets were employed. The

arch ring thickness was set at 1 ft. 8 in. through the rail-timbered area, and 2 ft. 6½ in. where timber was used. Throughout the tunnel, however, the lining as placed was somewhat in excess of the design thickness, which provided for a minimum cover of 12 in. over the inside faces of steel and timber in the side walls; 14 in. over the inside faces of the steel arch ribs, and 18½ in. over the inside faces of the timber arch ribs. No rod reinforcing was used, except where particularly soft ground was encountered.

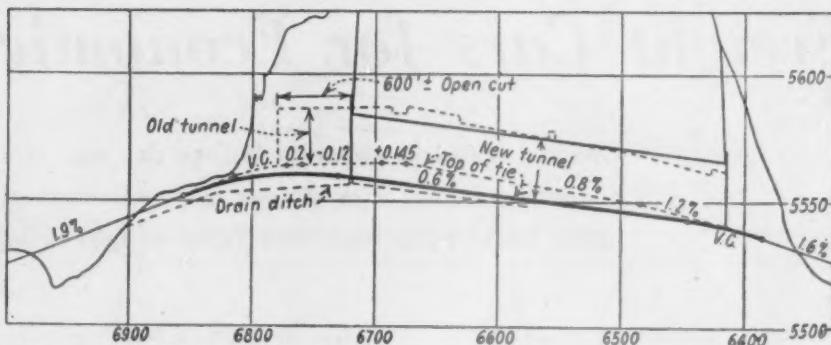
The concrete footings, curbs and ballast-retaining walls were poured ahead of the lining, and were reinforced throughout. This was followed by the pouring of the invert slab, which was designed to be 8 in. thick at the center and 16 in. thick on each side where it joins the curb — unreinforced except through limited areas involving soft ground.

Lining of the tunnel was done with two 40-ft. movable forms constructed of steel and wood, and equipped with flanged wheels, by means of which they were rolled from pouring point to pouring point over steel rails laid on the previously constructed concrete curbs. One of these forms was started approximately 2,160 ft. in from the east portal and was used to make successive pours eastward. The other was started directly at the west portal and worked east to a junction with the first section of lining poured with the first form. At this time, the first form, which had been used to pour 21 sections, was moved to a point midway between the section last poured and the east portal and was used to complete the lining to the east portal. The second form, meanwhile, was moved up and used to close in the lining gap left by the first form, completing the lining work.

Central Batching Plant

All concrete for the east portal, the lining-foundations and the curbs was batched and mixed at a central plant located near the east portal, employing a 1-yd. paving mixer. The concrete for the west portal, on the other hand, was mixed by a 1-yd. paving mixer mounted directly above the portal site, from which the concrete was chuted into place. The concrete for the east portal was transported from the central mixing plant to the forms by means of a 6-in. pumpcrete machine.

For the foundations and curbs, the concrete was transported from the central plant to the forms in two 4-yd. transit-mix trucks, and three hopper-body trucks, each of the latter having a 1-cu. yd. hopper. In the case of the invert, all concrete was placed directly by the paving mixer, which was moved into the tunnel and fed with aggregates



Longitudinal section through the new Bozeman tunnel, showing also outline of old tunnel and grade changes effected

trucked to it from the batching plant.

Pouring of the lining awaited the completion of the invert slab, but was then carried out progressively, employing the paving mixer, which discharged into a Prest-weld pneumatic placer for direct movement to the forms. All concrete was vibrated as placed, either internally or externally, or both.

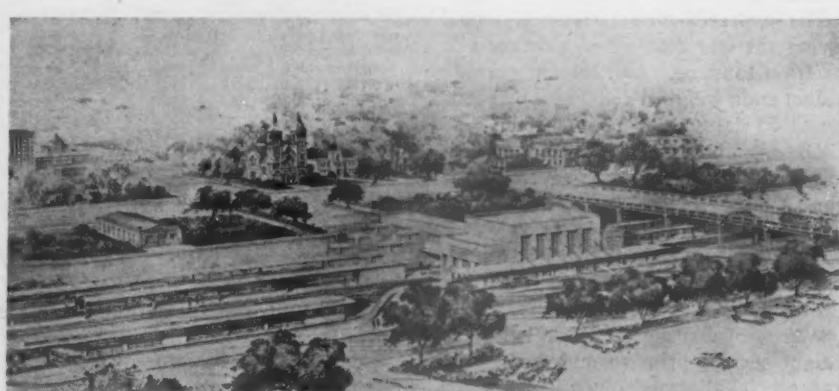
Several concrete mixes were experimented with in the tunnel work to secure the desired strength with suitable workability and minimum segregation — the final mix developed for footings, curbs, floor and lining being made up of 5 sacks of cement and 28½ gal. of free water for each cubic-yard batch, on the basis of 1 part cement, 2½ parts sand and 3½ parts of hard crushed gravel, with the addition of 1 lb. of Pozzolith per sack of cement. This mix had a slump of 3 to 4 in. and was designed to produce a concrete having a minimum strength of 4,000 lb. at 30 days.

The addition of the Pozzolith was found to be particularly advantageous, increasing the workability of the mix while holding down the water content, and thus increasing its strength per unit of cement used, while permitting ready placement and adjustment in the

forms without segregation. Without the addition of this material to the mix, a slump of 5 in. in the concrete had been anticipated as necessary, especially because of the harsh character of the aggregates used, to permit handling by the pneumatic placer without clogging.

Water-bearing seams and wet areas encountered within the tunnel were drained by placing weep holes through the tunnel lining at the base, draining into the gutter, and riser pipes were placed back of the lining to carry drainage to the weep holes from points of origin in the rock walls. A 2-in. conduit was placed in the north tunnel wall through the length of the tunnel to provide for future electric wiring.

The new Bozeman tunnel was built under the direction of Bernard Blum, chief engineer of the Northern Pacific, assisted in design by H. R. Peterson, principal assistant engineer, and R. R. Brockway, bridge engineer, and represented in the field by D. H. Shoemaker, assistant engineer. Actual construction of the tunnel, including approaches and the track work, was done by the J. C. Boespflug Construction Company, Seattle, Wash., with R. I. Riedesel as managing superintendent.



New Station Planned for Akron

An architect's drawing of the proposed new Union Station in Akron, Ohio, to be built by the Pennsylvania and Baltimore & Ohio. The building itself will be a three-story structure, 56 by 130 ft., with two sets of escalators and a concourse extending all the way across the tracks. The total cost of the building and changing of track layout is expected to exceed \$1,000,000.

Freight Cars for Economical Operation

Upward trend in capacity before the war accompanied by a reduction in the average car load—Recession in traffic will again build up a high tare ratio—Light weight a corrective

THE only profitable part of freight operation is hauling revenue payload; moving dead weight is merely a source of expense that should be kept to the minimum in all classes of trains. The early analysts of railroad operation stressed the desirability of heavy tonnage in freight trains. In the last twenty years, more emphasis has been placed on gross ton-miles per train-hour. Both of these standards are oversimplified, because they do not take account of the relation between dead weight and lading, which is the key to operating efficiency.

A short review of operating conditions will help to show the problems involved. In 1920 the average freight train on Class I railroads had a total weight of 1,443 tons, excluding locomotive and tender, and consisted of 35.6 freight-carrying cars. The weight of the train was made up of 650 tons of revenue load, 58 tons of non-revenue load, a total of 708 tons of lading, plus 735 tons representing the weight of the cars themselves. The ratio of dead weight of cars to the combined weight of revenue and non-revenue load was 104.4 per cent.

In the next 20 years train tonnage increased almost continuously and in 1940 the total train behind the tender weighed 2,047 tons and contained 49.7 cars. The total weight consisted of 781 tons of revenue load, 68 tons of non-revenue load, or 849 total tons of lading, and 1,198 tons weight of the cars themselves. The ratio of dead weight to lading had increased to 141.1 per cent.

The unprecedented volume of traffic during the war resulted in new records for train tonnage. In 1944 the average freight train weighed 2,409 tons and contained 53 cars. The revenue load was 1,068 tons, an increase of 37 per cent in only four years. The non-revenue load was 70 tons, the total lading 1,138 tons, and the ratio of dead weight to load 111.7 per cent. Changes in the weight of lading and dead weight in freight trains are illustrated by Fig. 1.

When evaluating the statistics of freight service prior to and during the war, special allowance must be made for the unusual conditions since 1941 and especially the regulations of the Office of Defense Transportation. For exam-

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ple, rules were established which increased the minimum tonnage for l. c. l. cars, and this reduced merchandise l. c. l. loading from 8,039,515 cars in 1941 to 5,536,792 cars in 1942. Similar insistence on heavy loading of carload freight increased the net tons per loaded car from 27.6 in 1940 to 32.7 in 1944, or 18 per cent in only four years. During the same period the ratio of empty to loaded car mileage was reduced from 61.8 to 52.0 and the average haul of freight, considering the railroads as one system, was extended from 351 miles in 1940 to 473 miles in 1944. These changes, of course, were largely responsible for the decrease in the ratio of dead weight to payload in freight trains.

Railroad officers are pleased to see the proportion of net ton-miles in freight trains increase, but the improvement from 1940 to 1944 resulted from abnormal operation and is not an indication of a permanent situation. The temporary effect of heavy carloading and other conditions due to the war is gradually

being eliminated and it seems reasonable to expect that within a few years freight-train operation will revert to train loads and ratios of dead weight to lading much closer to those which existed in 1940. Consequently, if the railroads are to make lasting improvements in the efficiency and profitability of freight-train operation, they must resort to measures that will be effective when traffic falls off, such as reduction in the weight of freight cars.

Capacity Increase Not Used

One of the noteworthy changes made in freight equipment during the past 25 years to decrease car mileage and the number of freight cars required has been the increase of average car capacity from 42.4 tons in 1920 to 50.0 tons in 1940 and 50.8 tons in 1944. As car capacity increases, the ratio of dead weight to maximum permissible lading generally decreases. Surprising though it is, the average load of carload freight not only failed to keep pace with the increase of capacity in the 20 years prior to the war but decreased from 29.3 tons in 1920 to 27.6 tons in 1940. The proportion of capacity actually utilized decreased from 69.1 per cent to 55.2 per cent.

Table I—Shifts in Domestic Transportation, 1939 to 1943

Type of hauler	Revenue ton-miles (000,000)		Per cent of total	
	1939	1943	1939	1943
Class I railways	333,438	727,075	+118	43.4
Motor trucks:				
Common and contract haulers	20,500	37,000	+ 80	2.7
Private trucks	29,700	23,600	- 26	3.9
Total motor trucks	50,200	60,600	+ 21	6.5
Water-borne:				
Coastwise and intercoastal	225,896	27,000	- 88	29.4
Great Lakes	76,312	111,604	+ 46	9.9
Inland waterways	19,937	25,365	+ 27	2.6
Total water-borne	322,045	163,969	- 49	41.9
Pipelines	63,100	105,000	+ 66	8.2
Airlines, mail express	11	50	+355	.001
Total domestic traffic	768,794	1,056,694	+ 37	15.6

Post-war Traffic Estimates (Interstate Commerce Commission)

Ton-miles (000,000,000) for each type hauler	1947		1948		1949	
	Est. A*	Est. C†	Est. A*	Est. C†	Est. A*	Est. C†
Class I railroads	484.1	438.3	507.0	453.6	529.9	461.2
Intercity, for-hire trucks	30.6	27.2	32.3	28.3	34.0	28.9
Intercity, private trucks	52.2	44.6	56.0	47.1	59.8	48.4
Water-borne, domestic	397.2	361.2	415.2	373.2	433.2	379.2
Pipe lines	110.3	104.9	116.1	109.8	121.9	113.8
Totals	1074.4	976.2	1126.6	1012.0	1178.8	1031.5

* Based on full national employment.

† Based on lowest national employment.

A paper presented before the Railway Club of Pittsburgh, Pa., March 28, 1946.

The increase in capacity of freight cars was accompanied by heavier dead weight, from 20.1 tons average per car in 1920 to 23.7 tons in 1940. An average of 1.7 tons less load with 3.6 tons more car weight resulted in an undesirable increase in the per cent of the tonnage in freight trains made up of the dead weight of cars.

Specific Data Lacking

It would be desirable to know how much saving can be effected by reduction in the weight of freight cars, but as yet no agreement has been reached on a method by which the decrease in expenses can be estimated. Several discussions of the economics of lightweight equipment and exhibits in railroad rate cases have shown figures for the annual saving per ton of weight reduction, most of which are between \$10 and \$32. An estimate for one railroad applied to box cars showed an annual saving of \$3.06 per ton, if the lightweight car cost no more than the conventional car. Evidently this estimate has not been accepted because 30,000 lightweight high-strength steel box cars have been built, some by the identical road to which this estimate applied. In the absence of reliable specific data, railroads are acting on the basis that common sense proves that the cost of hauling extra dead weight is a substantial part of all transportation expenses.

Overall figures, such as those previously quoted, obscure the influence of certain types of cars and further details cannot ordinarily be determined from standard statistics as published. However, some special data contained in an Interstate Commerce Commission report

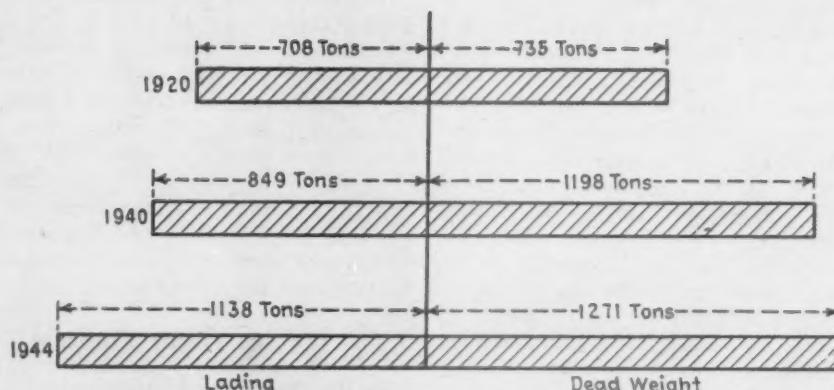


Fig. 1—Changes in the proportion and amount of lading and dead weight in freight trains since 1920

on rail freight service costs gave detailed information on carloadings by type of car for the year 1939. In that year the average weight of revenue carload freight in box cars was 24.6 tons, and of less than carload freight 5.4 tons, the average for all loads being 19.5 tons. About 12 per cent of non-revenue freight tonnage, or 15 per cent of non-revenue net ton-mileage, was also hauled in box cars. From these statistics the conclusion can be reached that in 1939 about one-fourth of all box cars, with nominal capacity of 44.5 tons, were hauling average loads of 5.4 tons. The loading in that service was therefore 12 per cent of carload capacity and about one-fourth of the dead weight of the car.

The average mileage of all freight cars in 1939 was 11,796 and box cars made an average of 11,635 miles, of which 8,715 miles were loaded and 2,920 miles empty, the ratio of empty mileage to loaded being 33.5 per cent.

Hopper and gondola cars are subject to operating conditions distinctly different from those for box cars. In 1939 the average nominal capacity of hoppers and gondolas was 55.7 tons and the average load carried 50.6 tons. These open-top cars utilized 90.8 per cent of the available rated capacity, whereas box cars used 55.3 per cent when handling carload freight and only 12.1 per cent when in l. c. l. service. The average mileage of hopper and gondola cars in 1939 was 8,137, about 30 per cent less than the average box-car mileage. The ratio of empty to loaded mileage was high, 85.7 per cent, so the average open-top car made 4,832 miles loaded and 3,755 empty.

If similar statistics for other years were available, the causes of the trend toward increase in the ratio of dead weight to payload could be analyzed more thoroughly. The available data on carloadings indicate that shippers of bulk commodities utilize additional cubic space or weight capacity in both open-top cars and box cars. However, the competition of highway trucks has taken from the railroads approximately one-half of the tonnage of l. c. l. freight transported. Therefore, the average tonnage of l. c. l. shipments per car decreased markedly from 1920 to 1940 while the capacity and weight of box cars were increasing. The importance of the low l. c. l. factor of utilization of car capacity in railroad freight transportation is evident from the fact that l. c. l. loadings made up 21.2 per cent of all carloadings during 1940 and more than 25 per cent of the total in 1938.

Light Weight a Corrective

Because box cars are so heavy in relation to the normal loading, many railroads are adopting high-strength steel for box-car bodies, and more than 30,000 of such cars are in service. An interesting illustration of the change from conventional to high-strength steel is

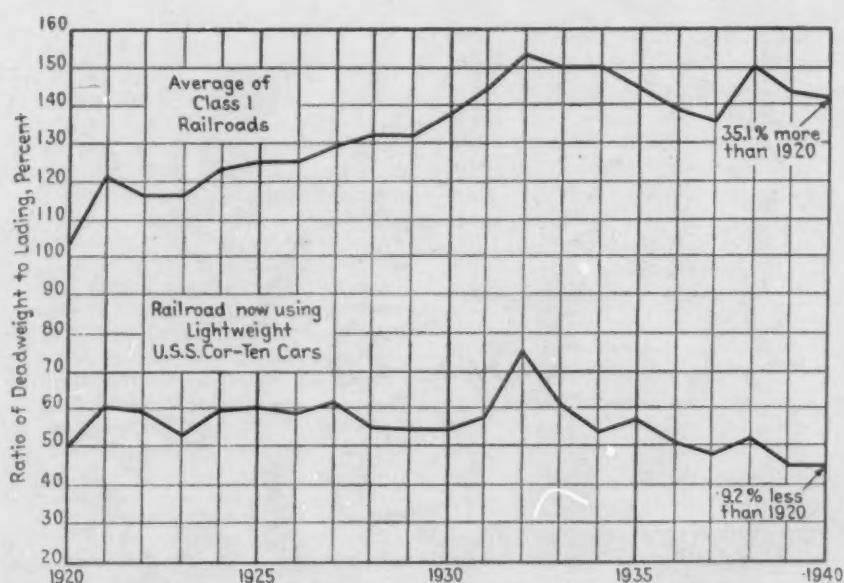


Fig. 2—The effect of lightweight cars on the dead-weight ratio

provided by cars recently built by the Pennsylvania Railroad. The conventional 50-ft. 6-in. riveted box car of copper steel construction, class X-38, weighed 55,300 lb. A car of high-strength steel, of the same dimensions and equal cubic capacity, assembled largely by welding, designated X-41, weighs 45,400 lb. This car has trucks which weigh 2,650 lb. less than those on the X-38. The weight reduction in the body alone due to the use of high-strength steel and welding is 7,240 lb.

The adaptability and versatility of high-strength steels are shown by the variety of the equipment in which they were applied. Designers of box, automobile and refrigerator cars have used these steels in various combinations of spot-welded, fusion-welded and riveted constructions, which in general are intended to provide strength equal to that of conventional cars with a substantial reduction of dead weight.

Varying Objectives

Hopper, gondola and ore cars involve some problems not found in house cars, because open-top equipment is often subject to more corrosive conditions, abrasion and abusive service. Some railroads want open-top cars built of high-strength steel with the maximum practical reduction of sections to decrease weight and increase capacity, at the same time aiming for strength and service life equal to conventional equipment. Others use these steels with no reduction of section, to decrease maintenance costs and lengthen the life of the car structure, while many roads choose compromise designs which give both a substantial increase in service life and a substantial decrease in weight.

Because open-top cars can usually carry the maximum permissible tonnage of lading, the advantage of weight saving in such equipment is evident, since any reduction in light weight brings an equal increase in the load limit. Car designers and users often ask how much weight reduction can be made in hopper cars without a substantial increase in repair costs or shortening of the cars' service life. The answer to this question will vary slightly for different roads, because it depends on the type of lading and operating conditions. Some indications of the serviceability of high-strength steel which has much improved corrosion resistance can be gained from experience with extremely light 50-ton hopper cars weighing 30,500 lb. built by the Pressed Steel Car Company in 1935. In these cars, the sides and bends were reduced from $\frac{3}{16}$ in. to $\frac{3}{32}$ in.; the floors, usually $\frac{1}{4}$ in., varied from $\frac{3}{32}$ in. at the top to $\frac{5}{32}$ in. at the bottom. After eleven years' service on three roads, not one of these cars has yet re-

quired overhauling for replacement of sides or floors.

During the war years, the railroads have demonstrated their ability to operate efficiently and profitably with a large volume of traffic. The trend now is toward more normal conditions and it is opportune to ask: What about the future? Estimates of traffic during the post-war years made by the Interstate Commerce Commission probably provide the best basis for looking ahead.

The I. C. C. Traffic Forecast

In 1939 the Class I railways hauled 43.4 per cent of the total revenue ton-miles of domestic freight transportation; in 1943 the railroad proportion was 68.8 per cent. The shift in freight traffic for these years and the I. C. C. estimates for 1947, 1948 and 1949 are shown in Table I.

The ton-mileage of water-borne traffic, shown in Table I, is based on the actual water mileage and, therefore, is substantially more than the increase of railroad ton-mileage resulting from the transfer of such traffic to the rails. Since 1923 the trend of intercoastal freight shipment has been downward but coastwise ton-mileage increased nearly three-fold from 1920 to 1929 and in 1940 was 80 per cent above 1929. In pre-war years, about 48 per cent of the coastwise traffic was in the Atlantic, 29 per cent in the Gulf and 23 per cent in the Pacific.

Examination of the trend of traffic carried by various transportation agencies before and during the war indicates that probable decrease in production and resumption of coastal and intercoastal shipping will account for the drop in railroad traffic forecast by the Interstate Commerce Commission.

Substantial increases in the costs of conducting transportation and maintaining facilities occurred during the war. From 1940 to 1944 freight service operating expenses per thousand gross ton-miles went up from \$2.36 to \$2.86, or 21.2 per cent, despite the 17 per cent increase in train load. Higher wages will certainly bring about another increase in unit costs. In the next few years competition will be intensified and if the railroads are to hold or increase their share of freight transportation above that which they enjoyed in the pre-war era, they will be interested in adopting all the practical means of reducing overall expenses. One of the methods which is continually gaining acceptance by more railroads is the use of high-strength steel for freight-car construction, because such materials permit reduction in dead weight of cars and increased potential payload capacity, thereby decreasing the ratio of tare ton-miles to revenue ton-miles. The most

widely used of these high-strength steels, U. S. S. Cor-Ten, has been applied in more than 62,000 freight cars for service in the United States.

A practical demonstration of what can be accomplished with lighter freight equipment built of high-strength steel is shown in Fig. 2. The lower line of this chart shows the ratio of dead weight to load on one railroad that has heavy traffic. Comparing 1935 with 1920, the ratio for this road had risen from .502 to .567 or 13 per cent. In 1935 the installation of lightweight high-strength-steel equipment was begun on this road. By 1940 the influence of the new cars had made itself felt to such an extent that the dead-weight ratio had dropped from .567 to .456, 19.6 per cent lower than 1935 and 9.2 per cent below 1920. This is the lowest ratio which we have found for any railroad and the only known instance of a dead weight ratio for 1940 better than that of 1920. This achievement is particularly noteworthy in view of the fact that Class I railroads, considered as a whole, had an increase of 35.1 per cent in the ratio of dead weight to lading from 1920 to 1940.

The Design Committee of the American Railway Car Institute and the Committee on Car Construction of the Mechanical Division of the Association of American Railroads have been preparing designs of high-strength-steel freight cars with a view to having them adopted as alternate standards. It is expected that the forthcoming annual report of the Car Construction Committee will include designs for box cars, 50-ton and 70-ton hopper cars, and fixed-end and drop-end gondolas. This is an indication of the more general acceptance of lightweight high-strength-steel freight cars and can be expected to accelerate the adoption of such equipment by roads that wish to adhere to standard designs of the A. A. R.

100 YEAR OLD KEY.—A brass switch key marked NYLE&W, used continuously for 54 years by James King who has retired as a passenger conductor, is on its way to its hundredth birthday. The NYLE&W was the predecessor to the Erie prior to 1895.

Mr. King's last request to John W. Graves, superintendent of the Alleghany and Meadville divisions, was to pass the key on to a new employee so that it could complete one hundred years of continuous use. It is the only NYLE&W key in existence as far as Erie officers know.

Mr. King, who lives in Hornell, New York, was born in 1872 and joined the Erie in 1891 as a road brakeman on the Alleghany division. It was then he was given his more than half-century-old switch key. He was later made a freight conductor and in 1933 promoted to passenger conductor.

At the time of his retirement Mr. King was serving as conductor on the Erie Limited between Meadville and Hornell.

Burlington Tests Show Signals Adequate

At the scene of the recent Naperville, Ill., accident, a test train was stopped short of the stop signal in all cases where the rules were obeyed

IN FIVE tests in the presence of representatives of the Interstate and Illinois Commerce Commissions, railway officers, newspaper men and others, the Chicago, Burlington & Quincy conclusively demonstrated that the disastrous collision at Naperville, Ill., on April 25, between the "Advance Flyer" and the "Exposition Flyer," in which 45 people were killed and 36 were seriously injured, could have been averted if the following train was operated in accordance with the rules and signal indications.

In making the tests, the Burlington used a 4,000-hp. Electro-Motive Diesel-electric locomotive, three coaches, one dining car, two Pullman tourist cars and three standard Pullman cars, all of conventional all-steel design and the identical type of cars that were in the "Exposition Flyer" on the day of the accident. Brake shoes were distributed throughout the train to compensate for the estimated weight of passengers on the regular train on that day. Water tanks on all cars were filled to capacity, as were the fuel tanks on the locomotive. The gross weight of the train was 2,146,610 lb., including the locomotive, cars, passengers, ballast and supplies. Brake-pipe pressure of 110 lb. was maintained throughout the tests.

Signal Visible 5,123 Ft.

As was reported in the *Railway Age* of May 4, the collision occurred on track 2 when No. 11, the "Advance Flyer," stopped at Naperville for inspection after one of the trainmen thought he observed something fly from under the train. A few minutes later No. 11 was struck from the rear by No. 39. The second signal to the rear of No. 11 was displaying a yellow aspect, the "restricting" indication. This signal can be seen from an approaching train throughout a distance of 5,123 ft. before it is reached. The distance between this signal and the one immediately to the rear of the train, which latter signal displayed the "stop" indication, is 5,617 ft. The point of accident was 934 ft. beyond the "stop" signal. Throughout this entire distance the grade is slightly rolling and is calculated to average 0.04 per cent ascending for westward trains.

The maximum authorized speed for No. 39 on track 2 in this area is 80 m. p. h.

The following Burlington rules govern the operation of trains at this point:

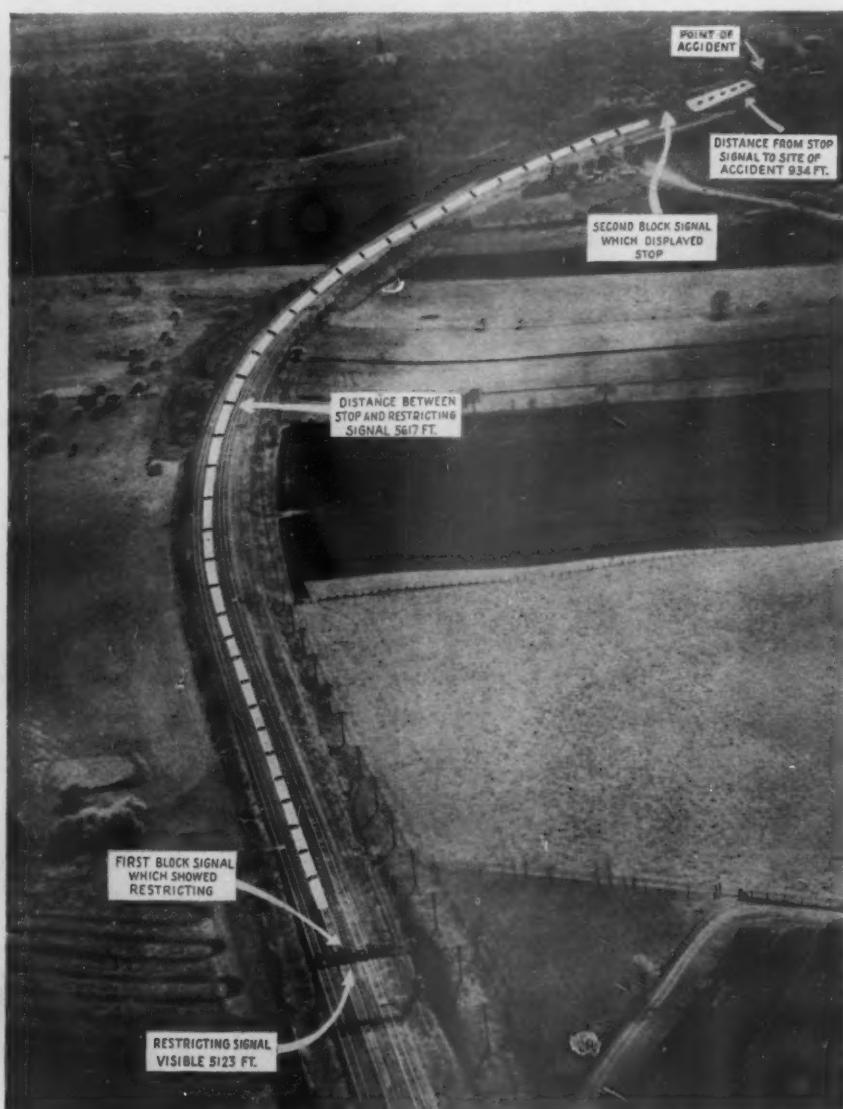
Timetable Rule 1—When a distant signal is displaying a restricting indication, trains must reduce speed at once and move at "restricted speed" until the indication of the next governing signal can be determined.

Book of Rules—Definition of "restricted

speed": Proceed prepared to stop short of train, obstruction, or anything that may require the speed of a train to be reduced.

Rule 917, Book of Rules—When fogs, storms, or other conditions obscure the track or signals, speed of trains must be reduced to permit strict observance of signals and insure safety, regardless of time.

An extra engineman, qualified for passenger service, was used for the first two test runs, but because the three final

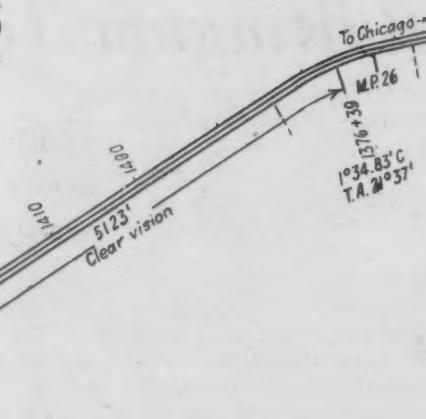
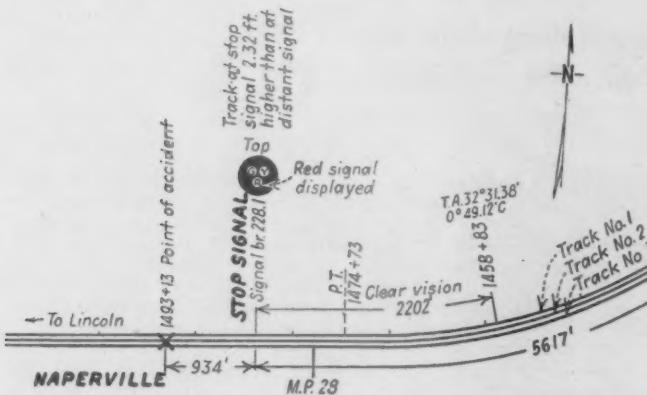


Chicago Sun Photo

Aerial view of the Burlington's line just east of Naperville, Ill.

runs were to be operated in a manner contrary to that required by the rules, they were operated by a road foreman of engines. In the first test the engine-

by a road foreman of engines, who was instructed to operate the train at 80 m. p. h. up to the distant signal and then



Map of the Burlington's tracks and signals approaching Naperville, Ill., from the east.

man was instructed to operate the train at 80 m. p. h., and, upon sighting the restricting signal, to comply with his understanding of the Burlington's rules, except that once the brakes were applied he was to allow the train to come to a stop.

In the actual test the train was running at 81 m. p. h. when the signal was sighted and the engineman made a brake-pipe reduction of 13 lb. The train came to a halt in 7,368 ft., 1,576 ft. short of the "stop" signal and 2,510 ft. short of the point of accident.

The second test was identical to the first, except that the engineman was instructed to operate the train at 85 m. p. h., 5 m. p. h. in excess of that authorized by timetable. In this test the actual speed was 86 m. p. h. at the time the brakes were applied, a single 12-lb. reduction being made. The train stopped

to stop the train by a full service application of the brakes. As the front of the locomotive passed under the signal bridge, the brakes were applied by a split reduction totaling 30 lb., made in two equal parts. The total reduction was effective 26 seconds after the start of the initial use of the brake valve. The train continued 5,222 ft. before coming to a stop 395 ft. short of the "stop" signal and 1,329 ft. short of the point of accident.

Test No. 4 was the same as No. 3, except that the road foreman was instructed to operate the train at 85 m. p. h., 5 m. p. h. in excess of that authorized by timetable. The brakes were applied in exactly the same manner as in test No. 3. The train stopped in a total dis-

tance of 5,584 ft., or 33 ft. short of the "stop" signal and 967 ft. short of the place where the collision occurred.

In the final test, the road foreman operated the train at a speed of 86 m. p. h., and applied the brakes in emergency at a point 2,202 ft. east of the "stop" signal; that is, 3,136 ft. east of the point of collision. This point was selected for the purpose of the test by representatives of the Interstate and Illinois Commerce Commissions as the first place at which the "stop" signal could be clearly seen from the engineer's position in the cab. The train was brought to a stop in a distance of 3,529 ft., or 1,327 ft. beyond the "stop" signal, and 393 ft. beyond the point where the rear of No. 11 was struck by No. 39 on April 25.

Results of braking tests at Naperville, Ill., on the Chicago, Burlington & Quincy, May 2, 1946

Run No.	Speed in m.p.h.	Distance in ft. to stop	Brake Application
1	81	7,368	13 lb., single
2	86	7,913	12 lb., single
3	80	5,222	30 lb., split (two equal reductions fully effective in 26 seconds)
4	85	5,584	30 lb., split (two equal reductions fully effective in 26 seconds)
5	86	3,529	Emergency

Weather:

Partly cloudy. Temperature varied from 57 deg. to 68 deg.

Condition of rail:

Dry in all tests.
No wheels were slid during any of these tests.

at a point 7,913 ft. beyond the point where the brakes were applied, or 1,364 ft. short of the "stop" signal and 2,298 ft. from the scene of the previous week's collision.

In test No. 3, the engine was handled



British Combine Photo

The "Golden Arrow," the London-Paris express of the Southern Railway, leaving Victoria station on its first journey following termination of the war



Reconversion Rapid on the T. & P.

Pre-war freight schedules resumed; vigorous industrial and agricultural campaign is in progress to attract new business

BY October, 1945, the Texas & Pacific had restored all of its peace-time freight schedules. These included overnight service with first morning delivery between such points as New Orleans, La., and Shreveport, 327 miles; and from Dallas, Tex., as far west as Monahans, 395 miles. They also include the "meat run," a train operated from Ft. Worth, Tex., to St. Louis, Mo., in connection with the Missouri Pacific. This train makes the 249-mile run over the T. & P. between Ft. Worth and Texarkana in eight hours. It handles 68 to 75 cars—right up to the tonnage rating of the districts it traverses. It picks up and sets out at Dallas and Marshall, and changes crews and engines at Mineola. The important transcontinental perish-

able and other freight services in connection with the western lines were also re-established on a pre-war basis last fall.

The rapidity with which the T. & P. was able to restore freight schedules and other services to a peace-time basis only a few months after war ended was not because the T. & P. failed to do its share of the war effort, as statistics quoted later show graphically. Rather, it was because the T. & P. had a sound physical plant when the war began, produced by advance planning and a continuing improvement program even during the depths of the depression. The T. & P. did its share and more during the war. It was situated in an area dotted with military installations of all kinds,

and numerous war plants, including particularly airplane factories, were located along its lines. However, it was never pushed beyond its capacity despite the increased traffic, and this was particularly true of its supply of motive power. As a matter of fact, as described in an article in the *Railway Age* for August 5, 1944, the T. & P. actually had many locomotives on lease to other railways during the war.

Traffic Increases

The following figures as to freight service indicate what the T. & P. was called upon to do during the war:

Ton-Miles

Year	Total	Per Mile of Road
1940	1,946,961,635	1,022,918
1941	2,413,524,988	1,276,930
1942	3,272,242,154	1,725,529
1943	3,901,107,218	2,064,220
1944	4,728,294,271	2,509,297
1945	4,486,549,429	2,389,068

The increases in passenger traffic were even more startling, indicative of the number of military camps along the T. & P. and the resulting heavy troop train movement, as well as individual movement of military personnel. The figures are as follows:

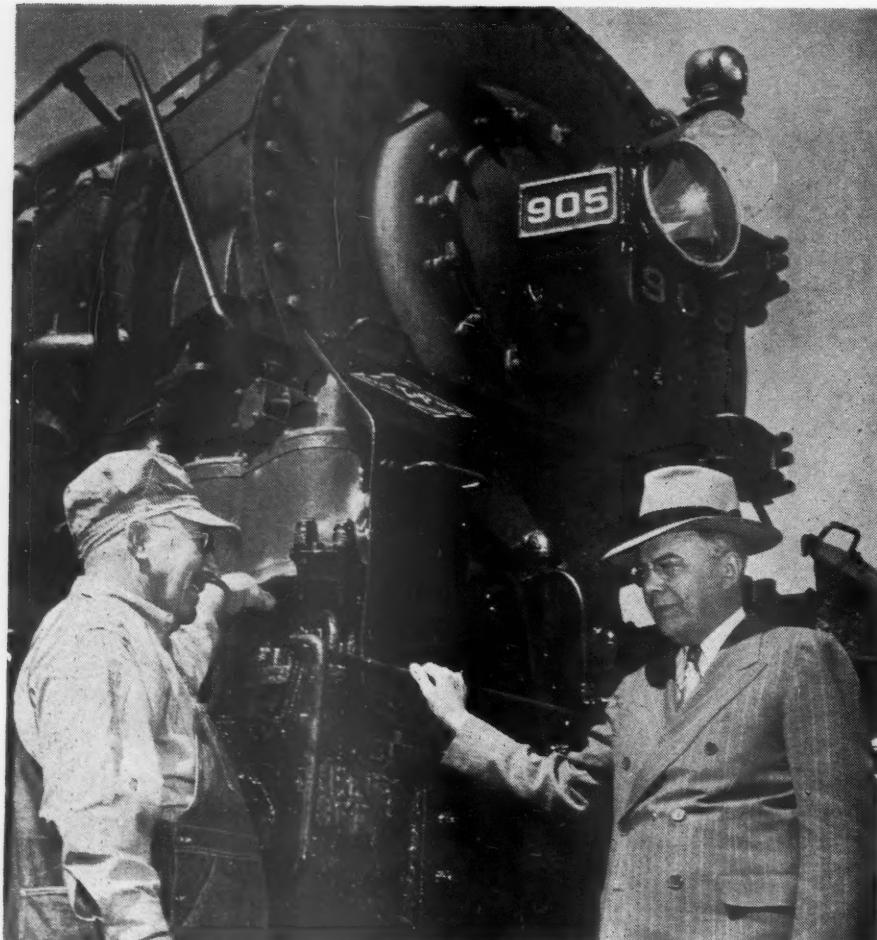
Passenger-Miles

Year	Total	Per Mile of Road
1940	122,811,084	64,524
1941	184,063,504	97,383
1942	554,162,134	292,223
1943	1,064,563,995	563,300
1944	1,131,513,972	600,492
1945	922,334,820	491,139

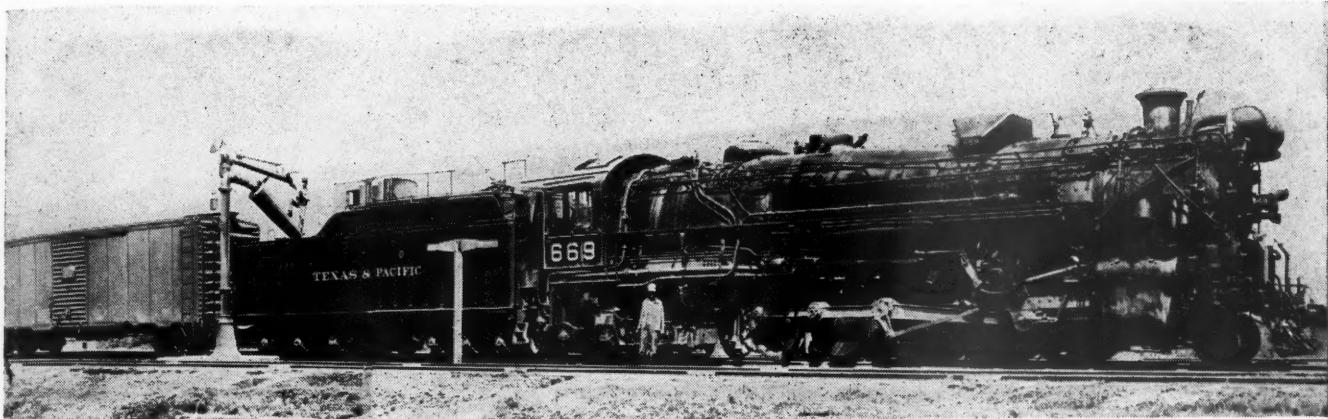
Operating Results

The average transportation cost of handling 1,000 gross tons one mile on the T. & P. for the 10 years 1916 to 1925, inclusive, was \$2.19, compared with a cost of \$1.24 for the last full war year, a decrease of 43.3 per cent. Had the 1916-1925 costs obtained, the expense of conducting transportation during 1944 would have increased \$14,509,014. This saving can be attributed largely to improvements in road, equipment and operating methods during the years preceding 1944, permitting the operation of heavy trains with greater dispatch. Incidentally, it exceeds by \$10,419,542 interest at 5 per cent on the cost of such improvements.

The accompanying table of operating



W. G. Vollmer, president of the T. & P., has endeavored to meet all employees during his first year in office



Texas-type locomotives such as this were used on both freight and passenger trains during the war and the T. & P. never experienced a power shortage during the war years

statistics shows clearly how a large part of these improvements were effected. Particular attention is drawn to the declining operating ratio during the war years.

Operating Statistics

Year	Gross tons per train	Average g.t.m. per train-hour	Operating Ratio
1940....	2,041	39,149	70.88
1941....	2,083	40,670	65.97
1942....	2,089	38,666	57.25
1943....	2,105	39,192	57.75
1944....	2,223	40,791	57.40
1945....	2,181	39,717	58.38

Physical Characteristics

The main line of the Texas & Pacific between New Orleans and El Paso, 1,166 miles, is laid entirely with 110-lb. and 112-lb. rail, except for short stretches of 85-lb. rail in Louisiana and some 90-lb. rail in Texas; the main line between Texarkana and Marshall, 66 miles, is laid with 112-lb. and 131-lb. rail. The line extending between Texarkana and Ft. Worth via Sherman, 245 miles, is laid with 112-lb. rail between Ft. Worth and Whitesboro, 72 miles, over which track Missouri-Kansas-Texas freight and passenger trains operate into Ft. Worth, and with 85-lb. and 90-lb. rail between Whitesboro and Texarkana.

The roadbed on fills is not less than 20 ft. wide at the subgrade, and in cuts not less than 24 ft. wide. Ballast in the territory east of Dallas consists of 10 in. to 14 in. washed gravel under the ties, and west of Dallas of 7 in. to 10 in. crushed stone under the ties. The ties are either 7 in. by 8 in. by 8 ft. or 7 in. by 9 in. by 8 ft. They are all treated with 7 lb. of creosote oil per cu. ft. and are laid 2,850 per mile. The line is tie-plated throughout.

Most of the main line is equipped with color-light automatic block signals, and two of the heaviest-density stretches—between Texarkana, Tex., and Big Sandy, 113 miles, and between Dallas and Ft. Worth, 32 miles—are equipped

with centralized traffic control, the latter-named line being double track.

Between New Orleans and Shreveport, the T. & P. has exceptionally easy grades, the ruling grades both east and westbound out of New Orleans for the first 209 miles being 0.3 per cent, and 0.4 per cent for the remaining 118 miles to Shreveport. However, as soon as the Texas line is crossed a broken grade line is encountered, with ruling grades of 0.8 per cent between Shreveport and Longview and of 0.9 per cent between Marshall and Texarkana on the main line to the north. The grade line is quite broken between Longview and Ft. Worth, with ruling grades of 1.1 per cent both east and westbound. Between Ft. Worth and El Paso the line crosses several summits involving maximum ruling grades of 1.40 per cent westbound and 1.35 per cent eastbound. Dallas is at an elevation of 450 ft. above sea level and near Allamore in the west Texas mountains the line reaches the maximum elevation at 4,600 ft.

Building for the Future

In May, 1945, W. G. Vollmer was elected president of the T. & P., succeeding J. L. Lancaster, who had guided the destinies of the railway over a period of many years, including the difficult depression years and the equally difficult war years. Mr. Vollmer continued and intensified plans for preparing the T. & P. as effectively as possible to meet post-war competition. While the prompt restoration of peace-time freight schedules was a spectacular achievement, this was by no means the only plan adopted. The improvement of the physical plant is being continued, one of the largest projects at present under way being the relocation job between Mineola, Tex., and Grand Saline, at a total estimated cost of \$577,000. This particular section of line has been subjected to seasonal wash-outs and five

miles of track are being relocated and raised to avoid these difficulties. The job will require approximately 320,000 cu. yd. of excavation.

Tied in with the faster freight schedules also are the plans for expansion of the T. & P. highway subsidiary. Before the war this had been built into a large and valuable adjunct of the T. & P. freight service in that it supplied truck service between the local stations and permitted the concentration of freight at distribution points served by rail, thus affording the smaller stations all the advantages of overnight freight service.

The sales organization has been considerably enlarged. In November, 1945, a new solicitation office was established at Tulsa, Okla., and in February, 1946, similar new offices were established in Houston, Tex., and in Boston, Mass. This gives the Texas & Pacific a total of 18 off-line freight solicitation offices.

A teletype system is being installed for the purpose of giving fast and accurate information to shippers and receivers as to the location of their shipments at all times. It will supply complete passing reports at all the more important stations.

A director of public relations has been appointed. He was formerly a general agent in the traffic department and for this reason is thoroughly familiar with all matters concerning the promotion of additional traffic. The T. & P. has for some years advertised its freight and passenger services rather widely through various media, including billboards. With the close of the war, a new and vigorous campaign has been started, with excellent advertising copy being produced. Under the new director of public relations also, an employee magazine was begun, the first issue having appeared in October, 1945. The new president is particularly interested in all these public relations activities and contributes to their success by making numerous speeches. It is his ambition to

become personally acquainted with every T. & P. employee, as well as all shippers and receivers along the line and, in his first year in office, he has come close to realizing this ambition.

Agricultural Promotion

The T. & P. serves a number of agricultural districts, as well as stock-raising areas. One of the huge crops handled is that of Louisiana sugar cane, which involves thousands of cars annually in relatively short haul service between the fields and the cane mills. Cotton is, of course, another highly important traffic item. There are also many farmers along the line engaging in general agricultural traffic.

The Texas & Pacific has two agricultural agents and a general livestock agent, who work closely with the organized agricultural agencies, state and federal, as well as with chambers of commerce and community leaders, in the development of better farming methods. These agents keep abreast of the latest developments in agriculture, both in improved production and new crops, and in cooperation with the organized agencies promote programs of this nature through the several agricultural agencies and farmers along the railroad. Diversified farming and soil building is a part of this program. In addition, these men assist in securing markets and the location of packers and shippers on the railroad to process and ship the products grown in the territory. Assistance is also given in organizing truck farmers for better production and in organizing dairy herd improvement associations, and in disease and insect control programs, involving both plant crops and livestock.

This program, over the years, has been instrumental in the development of a number of commercial vegetable crops, such as tomatoes, shallots, sweet potatoes, turnip greens, sweet corn, cantaloupes, watermelons, cucumbers, peaches, peppers and some of the older and more extensively developed agricultural crops.

The agricultural agents also work with the dairy industry in developing dairying and have assisted in bringing to the area milk plants, cheese plants and other dairy industries. The plans for agricultural and livestock development work are based on an aggressive, long-term program.

Industrial Development

At the present time the land and industrial department is making surveys of various towns on the T. & P. to locate all property which can be considered as trackage property, and is in contact with various chambers of commerce along the railroad, assisting them in locating in-

dustries. The railway is advertising industrial possibilities of the area served, such advertisements being carried in various newspapers and magazines with national circulation. Also, the industrial agent is calling on the heads of various industries all over the country, pointing out advantages and offering the assistance of the railway in selecting sites for industrial purposes.

Passenger Service Improvements

Many new passenger trains and schedules are being planned by the T. & P., and the trains should be in service late this year. An order totaling six million dollars has been placed for passenger train equipment. The trains will include the "Sunshine Eagles," replacing the "Sunshine Specials," operated between St. Louis and Texas points in conjunction with the Missouri Pacific and containing through California sleeping cars. The "Aztec Eagle" is also included, a new train between St. Louis and Mexico City via the Missouri Pacific and the National of Mexico, with the T. & P. as an intermediate carrier.

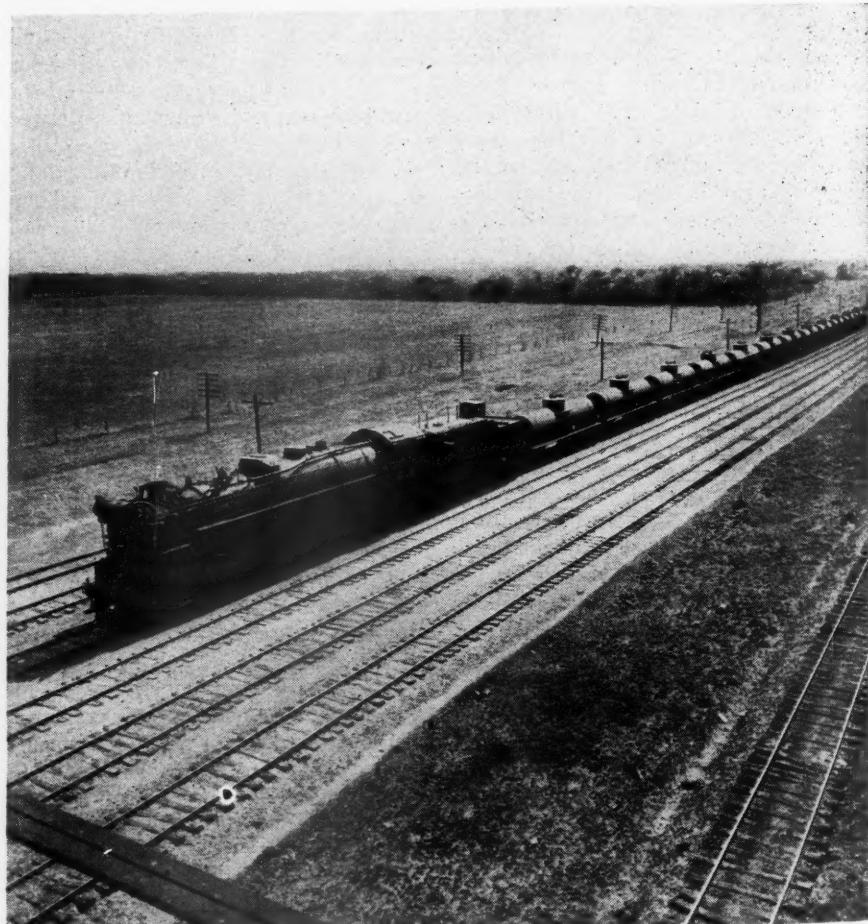
The "Louisiana Eagles" will be operated entirely by the T. & P. These trains will run between New Orleans

and Ft. Worth, serving, of course, such important centers as Shreveport and Dallas en route. All of the "Eagles" will be on much faster schedules than the present trains which they are to replace.

Oil for the Pacific

During the war it became almost routine on the T. & P. to handle emergency transportation jobs of large scope. One of these jobs was the sudden demand for hauling oil in large quantities from Midland, Tex., destined to the Pacific theatre of operations. Handling of oil requires a unique technic in railway operations. Fortunately, the T. & P. officers and employees have become familiar with this technic through years of experience in other oil fields along the line.

When the Petroleum Administration for War suddenly ordered 225 cars to be loaded and shipped out of Midland daily, the additional tracks and loading facilities were constructed in record time. The shipments were of crude oil, to be processed at California refineries before being shipped overseas. During the record month, 5,944 cars were loaded and moved—276 carloads having been moved during one day.



A train of tank cars being pulled by a
T. & P. 600-class, Texas type locomotive

Railway Express

Terminal Gets Public Address System

A TWO-WAY public address system of communications has been installed in the Railway Express terminal in Long Island City, N. Y. It is being used to facilitate the handling of 90,000 to 120,000 packages of express per day. The terminal has facilities for loading or unloading 185 motor vehicles and 75 railroad cars on six tracks simultaneously. The four platforms vary in length from a quarter of a mile long on one side to 800 ft. at the other. Overhead chain conveyors, driven by heavy-duty motors, pull trains of double-decked trailers along the platforms, laden with express shipments for loading into railroad cars. About 1,700 express men and women are employed at this terminal.

Forty-two loudspeaker-horns are located at various places throughout the terminal and 25 "hanging" microphones are suspended from the ceiling at strategic locations, enabling personnel to make reply to orders issued over the public address system.

A specially-constructed elevated glass-enclosed control room called the "crow's nest," in which one of the two master microphones is located, affords a bird's eye view of the platforms and vehicle back-up space to the announcer. By means of switches on a control panel, he can address selected sections of the terminal or feed his voice into all of the 42 horns at one time.

Elsewhere in the terminal, about 1,100 ft. away from the crow's nest, the second master microphone is operated from the agent's office, which may also address all or parts of the terminal. A red signal light on the control panel indicates when either one of the master microphones is in use, preventing "double-talk" over the P. A. system. Both the crow's nest and the agent's office can receive or cut out replies from the suspended microphones in the terminal.

About three miles of wiring was used to install the P. A. system, 10,000 ft. of it being armored cable to prevent interference from electric locomotives and power lines.



Above—The "Crow's Nest" control room with J. F. Cronin, assistant agent, at the microphone. Below—Pete Sweeney, assistant agent at the Express Terminal, reports to the control room via one of the 25 "hanging" microphones located throughout the terminal



GENERAL NEWS

3 Months Net Income Was \$17,100,000

Net railway operating income for the same period was \$108,706,637

Class I railroads in the first three months of this year had an estimated net income, after interest and rentals, of \$17,100,000, as compared with \$146,698,000 in the corresponding period of 1945, according to the Bureau of Railway Economics of the Association of American Railroads. The three-months net railway operating income, before interest and rentals, was \$108,706,637, compared with \$249,879,982 in the same period last year.

March's estimated results show a deficit after interest and rentals of \$42,400,000, compared with a net income of \$62,931,000 in March, 1945; while the net railway operating deficit for that month was \$20,459,240, compared with March, 1945's net railway operating income of \$102,003,623. In the 12 months ended with March, the rate of return averaged 2.56 per cent, compared with 3.91 per cent for the 12 months ended March 31, 1945.

\$147 Million Back Pay—Gross in the three months totaled \$1,866,113,380 compared with \$2,276,234,529 in the same period of 1945, a decrease of 18.0 per cent, while operating expenses amounted to \$1,568,170,303 compared with \$1,574,092,307, a decrease of 0.4 per cent. Expenses for the first quarter of 1946 include approximately \$147,000,000 of back pay resulting from the recent wage increases of 16 cents per hour. These charges were made in the March accounts.

Fifty-nine Class I roads failed to earn interest and rentals in the first three months, of which 26 were in the Eastern district, 10 in the Southern region, and 23 in the Western district.

Class I roads in the Eastern district in the three months had an estimated deficit of \$11,500,000 compared with a net income of \$57,330,000 in the same period of 1945. For March alone, their estimated deficit was \$26,000,000, compared with a net income of \$30,951,000 in March, 1945.

The same roads in the three months had a net railway operating income of \$29,118,162 compared with \$100,538,996 in the same period of 1945. Their net railway operating deficit in March amounted to \$14,086,592 compared with a net railway operating income of \$48,537,146 in March, 1945.

Gross in the Eastern district in the three months totaled \$825,576,670, a decrease of 15.3 per cent compared with the same period of 1945, while operating expenses totaled \$720,610,388 or a decrease of 1.3 per cent.

Class I roads in the Southern region in the three months had an estimated net income of \$6,200,000 compared with \$26,973,000 in the same period of 1945. For March, they had an estimated deficit of \$5,800,000 compared with a net income of \$8,991,000 in March, 1945. The three-months net railway operating income in the Southern region was \$22,729,868 compared with \$42,548,475 in the same period of 1945. The net railway operating deficit in March amounted to \$854,137 compared with a net railway operating income of \$14,988,964 in March, 1945.

Operating revenues in the Southern region in the three months totaled \$274,688,891, a decrease of 19.1 per cent compared with the same period of 1945, while operating expenses totaled \$222,156,738 or an increase of 3.9 per cent.

In the West—Class I roads in the Western district in the three months had an estimated net income of \$22,400,000 compared with \$62,395,000 in the same period of 1945. For March, they had an estimated deficit of \$10,600,000 compared with a net income of \$22,989,000 in March, 1945.

Those same roads in the three months had a net railway operating income of \$56,858,607 compared with \$106,792,511 in the same period of 1945. Their net railway operating deficit in March amounted to \$5,518,511 compared with a net railway operating income of \$38,477,513 in March, 1945.

Gross in the Western district in the three months totaled \$763,847,819, a decrease of 20.4 per cent compared with the same period of 1945, while operating expenses totaled \$625,403,177, a decrease of 0.7 per cent.

CLASS I RAILROADS—UNITED STATES			
Month of March		1946	1945
Total operating revenues		\$646,099,474	\$812,918,455
Total operating expenses		627,990,132	544,588,578
Operating ratio—per cent		97.20	66.99
Taxes		26,133,265	151,559,292
Net railway operating income (Earnings before charges) Def		20,459,240	102,003,623
Net income, after charges (estimated) Def		42,400,000	62,931,000
<i>Three Months Ended March 31, 1946</i>			
Total operating revenues		\$1,866,113,380	\$2,276,234,529
Total operating expenses		1,568,170,303	1,574,092,307
Operating ratio—per cent		84.03	69.15
Taxes		154,752,578	410,600,960
Net railway operating income (Earnings before charges)		108,706,637	249,879,982
Net income, after charges (estimated)		17,100,000	146,698,000

M-K-T, Frisco Speed Southwestern Trains

New Kansas City-Dallas train also to start May 12—Florida trains faster

Substantial reductions in the running time of passenger trains between St. Louis, Mo., and Kansas City on the north and Texas and Oklahoma points on the south have been announced by the Missouri-Kansas-Texas and St. Louis-San Francisco, to become effective May 12. The latter road in connection with the Southern is also improving passenger train service between Kansas City, Memphis, Tenn., Birmingham, Ala., Atlanta, Ga., and Jacksonville, Fla. The Frisco is also entering the Kansas City-Texas traffic with the inauguration of a new fast daylight passenger train between Kansas City and Dallas.

Under the new schedules the joint Frisco-Katy "Texas Special" will leave St. Louis at 5:30 p.m. via the Frisco, 30 min. earlier than at present, arrive at Dallas and Ft. Worth via the Katy at 9:55 a.m., 1 hr. 15 min., and 1 hr. 10 min. earlier, respectively, and arrive at San Antonio at 5:35 p.m., 1 hr. 30 min. earlier. Northward this train will leave San Antonio at 8:45 a.m., 45 min. later than present schedules: Dallas at 4:15 p.m., 45 min. later; Ft. Worth at 4 p.m., 30 min. later; arriving at St. Louis at 8:30 a.m. as at present. There will be no change in the schedules of the southward "Bluebonnet," except that this train will be discontinued south of Dallas, the new schedule of the "Texas Special" between Dallas and San Antonio being approximately the same as the present "Bluebonnet." Northward this train will be speeded 25 min. from Ft. Worth to St. Louis and 20 min. from Dallas.

The "Katy Flyer," operated the entire distance between St. Louis and Texas via the Katy, will also be materially speeded at this time. Under the new schedule this train will leave St. Louis at 11:25 p.m., 35 min. later, arrive at Dallas and Ft. Worth at 10:30 p.m., 10 and 20 min. later, respectively, and arrive San Antonio at 7:45 a.m., 15 min. earlier. Northward the running time of the "Katy Flyer" will be reduced 47 min. from San Antonio to St. Louis.

Serving Kansas City, the "Katy Limited" schedule will be improved to leave that point at 10:30 p.m., 15 min. later than at present, arrive at Dallas at 1:45 p.m., 20 min. later, Ft. Worth 1:25 p.m., as at present, and will be extended from Dallas to San Antonio, arriving at the latter city at 11 p.m. Northward this train will leave San Antonio at 12:30 p.m., 30 min. later; Dallas at 9:20 p.m., 10 min. earlier; Ft. Worth at 9:15 p.m. (Continued on page 969)

Trainmen, Enginemen Plan May 18 Strike

Reject report of emergency board—New demands filed by other op unions

Representatives of the Brotherhood of Railroad Trainmen and of the Brotherhood of Locomotive Engineers on May 3 broke off negotiations with the Carriers' Conference Committee, representing most of the nation's railways in discussions concerning wages and working conditions, which had followed announcement of the report of the "emergency board" named by President Truman to consider their demands for higher wages and numerous working rule changes. The unions, in ending the conferences, charged that the railroads had offered them "nothing substantial" beyond the board's recommendations, which were unacceptable to them, and announced their intention to strike on May 18, the first date which such action is permissible under the terms of the Railway Labor Act.

On the following day, the Brotherhood of Locomotive Firemen & Enginemen, Order of Railway Conductors and the Switchmen's Union of North America, served joint notices on virtually all carriers inaugurating a new wage movement in which they asked: (a) "That all existing basic daily wage rates, applicable to road service, shall be increased 40 cents, and all existing basic daily wage rates applicable to yard and hosting service shall be increased \$1.20; (b) that all arbitraries; miscellaneous rates; special allowances; and daily and monthly guarantees, as provided in schedules on wage agreements, shall be increased in proportion to the daily increase herein provided; and (c) that daily earning minimum guarantees shall be established applicable to all classes of road service, which minima shall be 80 cents in excess of the basic daily rates established under proposal (a) above. Earnings from daily guarantees, mileage, overtime and other rules applicable may be applied against such daily earning guarantees".

The notice served by these three organizations asks that "in event settlement is not reached in conference, the railroad is respectfully requested to join with the other interested railroads in the United States in creating and authorizing a national conference committee to meet with a similar committee representing the employees involved on the same railroads for the purpose of handling to a conclusion the changes proposed above".

These three brotherhoods had originally demanded an increase in basic daily wage rates of \$2.50 and, under agreement with the carriers, submitted that proposal to an arbitration board. The board awarded, on April 3, an increase of \$1.28 per basic day, retroactive to January 1. In making the award, Carl J. Goff, arbitrator representing the employees, noted a dissent, but filed no separate opinion.

The action of the B. of R. T. and the B. of L. E. follows a long period of negotiations between the carriers and these unions concerning wage increase demands

Whitney Urges Government Ownership

In a statement to the press May 7 A. F. Whitney, president of the Brotherhood of Railroad Trainmen, called for "immediate" and permanent seizure of the railroads by the federal government. He said:

"Due to the obstinacy of the railroads and the fact that they are unwilling to make a reasonable settlement with their employees, I suggest that Congress enact legislation to effect the immediate seizure of the lines, impound all funds and make suitable adjustments of grievances with employees."

"Government ownership and operation is not the aim of the trainmen but appears to be the only way by which over capitalization may be corrected and railroad finances placed upon a sound basis. It will also eliminate the tremendous commissions paid bankers and unwarranted fees paid lawyers, trustees and receivers."

of 25 per cent, or \$2.50 per basic day, and changes in numerous working rules requested by both parties. As a result of threatened strike action, an emergency board was appointed by President Truman, which recommended an increase in pay of \$1.28 per basic day and changes in 11 rules requested by the employees and in four rules requested by the roads. Except as to one rule, the board's recommendations did not grant in full the demands of either party. Its comment on the rules proposals before it was summarized in *Railway Age* of April 27, page 878.

In a joint statement for the carriers after the brotherhood's action was announced, John M. Fitzgerald, vice-chairman, Eastern Railways' Committee on Public Relations and Harold M. Sims, director of public relations, Western Association of Railway Executives said: "The railroads have done everything possible to avert the threatened strike. They not only have complied with every provision of the Railway Labor Act, but they demonstrated their respect for the very spirit of the act when they told the unions on May 2, that they were willing to abide by the recommendations of the Truman board".

The statement said that the recommended wage increase, when added to those granted to other groups by two arbitration boards, would cost the railways a total of \$619 million this year, and emphasized that this is the third wage increase since 1941.

"The railroads no longer can absorb these and other increased expenses in their pre-war rates", it continued. "They already have been forced to apply for substantial increases in freight rates. The changes in working rules recommended by the Truman board all involve additional expense and, in the opinion of the carriers, impose an unwarranted burden on the cost of rail transportation to the American public.

(Continued on page 970)

Orders Drastic Cuts in Railroad Service

Coal strike brings on freight embargo, curtailment of passenger operations

Drastic embargo restrictions on railroad freight and express shipments and sharp cuts in passenger services were scheduled, when this issue went to press, to become effective at 12:01 a. m. on May 10 as a result of the critical fuel situation brought on by the continuing strike of bituminous coal miners which was in its sixth week. Meanwhile government efforts to effect a settlement continued in Washington, where the White House last week-end made public an Office of War Mobilization and Reconversion report calling the strike a "national disaster."

The freight embargo, issued by the Car Service Division, Association of American Railroads, at the direction of the Office of Defense Transportation, covered with few exceptions all carload and l. c. l. freight between all points in the United States, Mexico and Canada. The express embargo, of like scope, was issued by the Railway Express Agency at the request of O. D. T., because, as the O. D. T. announcement put it, the railroad embargo "would otherwise divert l. c. l. freight to the express service."

The restrictions on passenger services were required by O. D. T. under its General Order ODT 60. The order prohibited railroads from operating during the period from 12:01 a. m. May 10 until 12:01 a. m. May 15 a total daily coal-burning passenger service locomotive mileage in excess of 75 per cent of the total operated on April 1. As of 12:01 a. m. May 15, a cut of 50 per cent under the April 1 locomotive mileage was required. The order, issued on May 2, was followed on May 6 by Amendment No. 1 which prohibited the operation, after 12:01 a. m. the 10th and until further notice, of any circus train, carnival train, or any other train which the railroads are not required, as common carriers, to transport.

Embargo Exceptions—As revised up to May 8, the prospective freight embargo was Car Service Division Embargo No. 237, Amended. The exceptions to its general ban on all carload and l. c. l. shipments were set forth as follows:

1. Livestock and live poultry.
2. Coal, coke, coke by-products and charcoal. Petroleum (crude), petroleum coke, gasoline, fuel oil, kerosene, lubricating oils, lubricating grease, and liquefied petroleum gas.

3. All food for human consumption including wheat, corn, oats, rye, barley, rice, cereal products, soybeans, salt, canned goods, sugar, lard substitutes, perishable foods, vegetable oils, flax, and barley malt consigned to cereal and baby food manufacturers. Feed for animals and poultry, not including hay and straw. Seeds for food products and livestock feed.

4. Printing paper, including newsprint, printing ink. Newspapers and magazines.

5. Medicines, drugs, surgical instruments and surgical dressings, hospital and sick room supplies.

6. Traffic originating at or destined to points local to one railroad or zone of such railroad where freight service is operated wholly with other than coal-burning locomotives.

7. Shipments moving on permits issued by W. C. Kendall, chairman, Car Service Division.

8. Liquid chlorine, alum, lime, sulphate of iron, soda ash and similar chemicals to be used for

purification of municipal water supply or sewage disposal; also return empty chlorine cylinders.

9. Chemicals used for sanitation and public health requirements when consigned to milk processors, milk distributors and food processors.

10. Insecticides and fungicides.

11. Containers and necessary packaging material for food and drugs as described in Exceptions 3 and 5 when consigned to manufacturers or processors of such products.

The first footnote points out that shipments originating and terminating wholly within Canada or Mexico are not subject to O. D. T. authority, and thus freight originating in those countries is subject to the embargo only when destined for U. S. points or for movement through this country. Another note explains that the embargo supersedes other existing embargoes, but commodities exempt under it remain subject to such existing embargoes if they have been so covered. General Permit No. 1 issued May 6 authorized acceptance of hay and straw shipments when consigned to the Department of Agriculture, Production and Marketing Administration, at ports.

War Department Cooperates — As the foregoing shows, there was no general exemption for government freight, and the War Department announced on May 5 that it would give "all-out support" to O. D. T.

"In the freight field," the statement said, "the Army will seek permits for shipments only of supplies and equipment necessary for the maintenance of troops in overseas theaters, and of supplies and equipment necessary for minimum maintenance of camps, posts and stations within the continental limits of the United States. Under no circumstances will these supplies and equipment be for construction work unless such construction is vital to the immediate welfare of troops."

"In the passenger field, the Army will move only those troops en route to overseas theaters, those troops returning to the United States from overseas theaters, and patients. Movements of all other individuals and groups will be suspended indefinitely. During the embargo, there will be no movement of prisoners of war."

O. D. T. Director J. Monroe Johnson's "directive" calling for the embargo was embodied in a May 2 letter to J. J. Pelley, president of the A. A. R. "Because of the continued strike in the bituminous coal fields and the rapid depletion of railroad reserve supplies," Colonel Johnson wrote, "it is the judgment of this office that immediate steps must be taken to conserve the remaining supply by limiting its use to the most important traffic of the country. You are, therefore, directed to issue a general embargo to be effective at 12:01 a. m. May 10. . . . This embargo should be distributed at once. This will permit any questions that may be raised with regard to its effectiveness to be settled by the time that it actually becomes effective."

Also on May 2, Colonel Johnson wrote to Mr. Pelley another letter making further comment on the prospective embargo but dealing mainly with the need for curtailing passenger services. The O. D. T. director recognized that much had already been done along that line by individual roads, but he made a general request that additional steps be taken preparatory to compliance with General Order 60.

What to Curtail — "You should," he

Order Will Take Off 2,000 Passenger Trains

An estimated 2000 passenger trains, running nearly 200,000 miles daily, would be discontinued by Friday, May 10, according to reports from individual railroads received by the Association of American Railroads up to May 8. This represents approximately 25 per cent of the passenger train service accomplished by coal burning locomotives, it was stated at A. A. R.

To mitigate the disruption of schedules as far as possible, plans were under way to transfer Diesel-electric locomotives between freight and passenger service, to meet the most urgent demands of either, under the conditions which would prevail under the general freight embargo and restrictions on coal burning passenger train service scheduled to become effective at midnight Thursday. In addition, where possible steam locomotives were being converted from coal to oil burning.

told Mr. Pelley, "advise the railroads that they must make further reductions in passenger and freight service, with the objective always in mind of reducing coal-burning locomotive mileage. I believe that each railroad will be the best judge of the services it can most effectively reduce. Some may desire to reach the objective by making reduction in branch line services. . . . Some may find it possible to eliminate trains operating at times of day when few people are traveling. The movement of special trains and special cars should be discontinued. Extra sections of trains should be discontinued wherever possible. Where seasonal trains are already established these should be reduced and no more established until the situation is improved. A review of the operations to eliminate so far as possible the double-heading of coal-burning locomotives should be made. I extend these as general suggestions, and each railroad can most accurately ascertain for itself the exact measures to follow."

Colonel Johnson went on to announce his plan to issue the curtailment order, and he concluded his letter as follows: "The full measure of cooperation between the carriers, the public and the government experienced throughout the war has always led to successful achievement. That same full cooperation will, I am sure, enable us to meet this most difficult situation." A similar letter went to J. M. Hood, president of the American Short Line Railroad Association.

Colonel Johnson has ordered motor carriers to give preference to the same essential commodities which may be carried by rail under the embargo. This is intended to keep commodities that are embargoed on the railroads from replacing essential traffic on the highways, he explained. He further warned that if the rail situation becomes more critical, he will take further measures to assure motor vehicle transport of food, fuel, medicine and

other equipment, materials and supplies vital to the protection of life, health, and public safety.

Meanwhile the O. D. T. director made a statement to the press, predicting that the effects of the coal strike "will hit transportation hard for at least a year, probably 18 months." He added that a settlement would by no means end the "transportation crisis." His fears applied principally to the freight situation, since he anticipated that passenger travel conditions would be normal a short while after the strike ends.

With respect to the freight situation, however, he stated that the backlog which will accumulate during the embargo could be expected to augment difficulties arising from the following factors: (1) Coal which should be moving now will have to be distributed next fall and winter, placing an extra burden on rail transportation; (2) reconversion progress by fall will increase transportation demands; (3) less equipment is available than before the war and it is "in a very much worse condition" than in 1941; and (4) practically no new equipment is becoming available "because of the inability to get needed metals, lumber and other materials."

Information made available at the A. A. R. this week indicated that the latest survey of railroad coal supplies showed that as of May 6 the carriers had on hand an average of 20 days' supply on the basis of the current rate of consumption. In the latter connection it was explained that curtailments in service and reductions in traffic already in effect had cut the daily fuel consumption of coal-burning locomotives below 250,000 tons, as compared with a "normal" daily consumption of about 300,000 tons. Some roads, of course, had much less coal on hand May 6 than the average 20 days' supply of the reporting group as a whole, the range being from eight to 50 days' supply.

Railroad Men Laid Off — Reports to the Car Service Division indicated that, as of May 6, about 51,000 railroad men were already idle as a result of the coal strike. Other reports, though incomplete, indicated that industries served by the railroads have had to suspend or curtail production to the point where 400,000 of their employees had been laid off.

When the full effects of the embargo and passenger service curtailment order are felt it is estimated that the railroads will be forced to lay off 100,000 men in addition to the 51,000 already idle as noted above. The lay-offs will take place chiefly in train and yard service, roundhouses and shops, and freight stations and transfers. It was pointed out at the A. A. R. that the full effect of the embargo will not be felt for several days after it becomes effective, since all freight loaded before 12:01 a. m. on the 10th will move to destination.

Recent actions of Solid Fuels Administrator J. A. Krug include a May 3 "directive" to all coal consumers, including railroads, prohibiting receipt or confiscation of any coal subject to distribution by S. F. A. Then came a May 7 "directive" tightening restrictions on the distribution of coal by retail dealers and Great Lakes and tidewater dock operators, who were prohibited from making deliveries except to specified consumers, including railroads,

"if they certify in writing that they have less than a 10 days' supply."

Previously Mr. Krug had written to A. A. R. President Pelley, asking that railroads conserve present coal supplies as far as possible. The S. F. A. administrator noted that although some roads have "fairly adequate" stocks, the S. F. A. had received requests for coal from a number of roads. Mr. Krug further stated that the coal frozen at the beginning of the strike amounted to about 1,650,000 tons, but as of May 7 about 50 per cent of the emergency stock had been released, and "depletion of the balance is foreseen in about two or three weeks."

Freight Car Loadings

Total carloadings for the week ending on May 4th were not available when this issue went to press.

Loading of revenue freight for the week ended April 27 totaled 659,952 cars, and the summary for that week as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

For the Week Ended Saturday, April 27, 1946			
District	1946	1945	1944
Eastern	141,852	167,872	166,664
Allegheny	126,103	204,239	192,757
Pocahontas	15,510	56,931	55,873
Southern	114,060	131,670	125,810
Northwestern	90,942	130,635	120,398
Central Western	111,192	133,088	116,635
Southwestern	60,293	75,515	72,304
Total Western Districts	262,427	339,238	309,337
Total All Roads	659,952	899,950	850,441
Commodities:			
Grain and grain products	33,103	52,725	37,873
Livestock	19,359	16,563	15,504
Coal	31,167	175,682	173,659
Coke	6,397	15,139	14,754
Forest products	45,315	40,986	42,886
Ore	20,828	72,921	67,475
Merchandise.c.l.	129,298	114,173	107,207
Miscellaneous	374,485	411,761	391,083
April 27	659,952	899,950	850,441
April 20	650,743	864,700	838,737
April 13	649,194	847,013	798,683
April 6	644,663	765,672	787,985
March 30	809,142	836,000	786,106
Cumulative Total, 17 weeks	12,377,111	13,455,565	13,504,699

In Canada.—Carloadings for the week ended April 27 totaled 65,411 cars as compared with 60,536 cars for the previous week and 71,461 cars for the corresponding week last year, according to the compilation of the Dominion Bureau of Statistics.

Totals for Canada:	Total Cars Loaded	Total Cars Rec'd from Connections
April 27, 1946 ..	65,411	30,864
April 28, 1945 ..	71,461	38,042
Cumulative totals for Canada:		
April 27, 1946 ..	1,123,548	592,524
April 28, 1945 ..	1,127,030	634,345

Deny Service on T. P. & W.

On May 1 Federal Judge J. LeRoy Adair at Peoria, Ill., denied a petition presented by a group of shippers in which they sought a temporary order restoring freight service on the strike-bound Toledo, Peoria & Western. The petition was refused by the court pending action in a suit, also brought by several shippers, seeking the appointment of a receiver for the road.

Attorney John E. Cassidy, representing

the shipping group, based his request for the order restoring service on the grounds that his clients were suffering daily losses during the hearing of the suit to appoint a receiver. Judge Adair, in refusing the petition, said that because the T. P. & W. had been tied up by the strike since October 1 the case was of "sufficient magnitude" to warrant hearing all of the evidence before any order was entered.

M-K-T, Frisco Speed Southwestern Trains

(Continued from page 966)

p.m., 10 min. earlier; and arrive Kansas City at 7:55 a.m., 20 min. earlier.

The "Bluebonnet" from Kansas City will operate on virtually the same schedule as at present to Dallas, where its through Kansas City-to-San Antonio sleeping car will be transferred to the "Texas Special" for movement to destination, arriving there 10 min. earlier than at present. Northbound the "Bluebonnet" will be quickened 25 min. from Dallas to Kansas City and 35 min. from Ft. Worth. The "Katy Flyer" will leave Kansas City at 9:20 a.m. under the new schedules, 1 hr. later than now, arriving at Dallas and Ft. Worth at 10:30 p.m., 10 and 20 min. later, respectively, and at San Antonio at 7:45 a.m., 15 min. earlier. Northbound this train will be speeded 45 min. from San Antonio to Dallas.

On the Frisco, in addition to participating with the Katy in the quickened schedules between Texas and St. Louis, there will be several changes in service between St. Louis and Oklahoma points. Southward the "Meteo," the road's principal train to Oklahoma, will depart from St. Louis at 6:30 p.m., 15 min. later, while keeping the same arrival times at Tulsa and Oklahoma City, while the "Will Rogers" will leave St. Louis at 11:30 p.m., 27 min. earlier, and arrive Tulsa at 9:55 a.m., 2 hr. 10 min. earlier, and at Oklahoma City at 12:40 p.m., 2 hr. 20 min. earlier. Northward the "Meteo" will operate on a schedule 15 min. faster, while the "Will Rogers" will leave Oklahoma City at 12:01 p.m., 2 hr. 30 min. later, Tulsa at 2:35 p.m., 2 hr. 50 min. later, and arrive in St. Louis at 12:15 a.m. as at present.

The present "Firefly" operating between Kansas City and Oklahoma City via Tulsa will be transferred to run between Kansas City and Dallas via Tulsa and will be rechristened the "Texas Flash." Between Tulsa and Oklahoma City, new trains Nos. 15 and 16 will be placed in service on the approximate schedules of the previous "Firefly," but making local stops. The new "Texas Flash" will leave Kansas City at 10 a.m., 1 hr. 30 min. later than the "Firefly," arrive at Tulsa at 3:45 p.m., 1 hr. 10 min. later than the "Firefly," and arrive at Dallas at 10:35 p.m. Northward the "Flash" will leave Dallas at 7:40 a.m., Tulsa at 2:15 p.m., 2 hr. 15 min. later than the "Firefly," and arrive in Kansas City at 8 p.m., 2 hr. 15 min. later than the present train.

Another improvement in Frisco passenger train schedules will result in material reductions in running time between Kansas City and Florida, operated via Birmingham and the Southern. Under the schedules effective May 12, the "Kansas City-Florida Special" will leave Kansas City at 9:30 p.m., 4 hr.

10 min. later than at present; arrive at Memphis at 9:10 a.m., 2 hr. 15 min. later; at Birmingham at 4:30 p.m., 2 hr. 5 min. later; at Atlanta at 10:20 p.m., 1 hr. 5 min. later; and arrive at Jacksonville at 7:55 a.m., 10 min. later, a 4-hr. reduction in running time. Northward this train will leave Jacksonville at 8:45 p.m., as at present; Atlanta at 7:45 a.m., 15 min. earlier; Birmingham at 12:35 p.m., 30 min. earlier; Memphis at 7:45 p.m., 1 hr. earlier; and arrive in Kansas City at 8 a.m., 1 hr. 55 min. earlier. The running time of the "Sunnyland," overnight train between Memphis and Birmingham will also be cut 30 min. at this time.

The Missouri Pacific has announced that it has worked out plans for similar schedule adjustments between St. Louis and Texas points in connection with the Texas & Pacific. These improved train services were also to have become effective May 12, but, due to "circumstances beyond the control of the railroad" have had to be postponed for a few weeks.

Acute Creosote Shortage Hampers Wood Preserving

Unless Great Britain allows coal-tar creosote to be exported to the United States, the wood-preserving industry of this nation faces a shortage of at least 20 million gallons of creosote in 1946, according to J. F. Linthicum, president of the American Lumber & Treating Company, Chicago.

An adequate supply is absolutely essential to the national economy for maintaining railroad, utility, and communications systems, he stated, as "there is no comparable substitute for creosote in the preservation of ties, electrical transmission poles, and marine piling."

"Users are operating on a hand-to-mouth basis and any interruption of shipments from distilleries because of strikes in the steel or coal industries, or for any other reason, causes immediate shutdown threatening the loss of large inventories of cross ties, poles, piling, and other forest products in storage for seasoning," he said.

In a letter addressed to John D. Small, head of the Civilian Production Administration, Mr. Linthicum pointed out that prior to passage of the Lend-Lease bill "England exported creosote and imported fuel oil, utilizing the same tankers. A favorable trade balance was thereby created. After Lend-Lease (March 1941) England abruptly curtailed creosote exports, which action leads to the obvious conclusion that England felt relieved of any obligation to pay for fuel oil so it decided to reserve its supply of creosote for use as fuel also."

Several cargoes were released by England a few months later after considerable urging on the part of officials in Washington; however, no imported creosote has come into this country since early 1942, he explained. Creosote requirements of the United States have been partially supplied from foreign sources for many years and normal imports from 1931 through 1940 averaged 39,668,062 gallons annually or 27.7 per cent of total consumption, the greatest part coming from England.

"During the war years domestic steel and coke production increased with a corresponding increase in creosote production. At the same time railroad, utility, and industrial construction requiring creosote de-

creased and the domestic creosote supply was almost equal to the demand. The result was, however, that creosote inventories were gradually reduced and by the end of 1945 the bottom of the barrel had been reached," Mr. Linthicum said.

"With the termination of hostilities, it was anticipated that England would resume the exportation of creosote but to date export licenses have been unobtainable. We believe that England is fully aware of the important part that creosote plays in our domestic economy and of their own strategic position so the problem then becomes one for our State Department to solve," he stated, in urging the government to correct the situation at the earliest possible date.

Railway Tie Association's Annual Meeting

The first post-war convention of the Railway Tie Association will be held on May 28-29 at the Netherland Plaza hotel, Cincinnati, Ohio. A timely and well-planned program dealing with many phases of the production, handling and service life of crossties includes as one of its prominent features an address by R. H. White, Jr., and a motion picture depicting the mechanical apparatus for handling crossties developed by the Southern Wood Preserving Co. at its Atlanta, Ga., plant. The program follows:

TUESDAY, MAY 28 Morning Session

Opening business

Three Addresses: — What Lies Ahead for the Crosstie Industry—

- (1) From the Standpoint of the Railroad Engineer, by W. J. Burton, assistant to chief engineer, Missouri Pacific, St. Louis, Mo.
- (2) From the Standpoint of the Railroad Economist, by Graham E. Getty, statistician, Bureau of Railway Economics, A.A.R., Washington, D. C.
- (3) From the Standpoint of the Producer, by Elmo D. Jones, T. J. Moss Tie Co., St. Louis, Mo.

Report of Industry Committee on Checking & Splitting of Crossties.

Address: The Nine-Foot Tie on the Atlantic Coast Line, by L. S. Jeffords, chief engineer, Atlantic Coast Line, Wilmington, N. C.

Luncheon—12:30 p.m.

Address: How Rail Transportation Suffers from Unfair Treatment, by W. G. Vollmer, president of the Texas & Pacific, Dallas, Tex.

Afternoon Session

Report of the Legislative Committee

Report of the Committee on Specifications

Report of Councillor-Delegate to the Chamber of Commerce of the U. S.

Address: The Future of Tie Prices, by Peter Stone, editor-in-chief, Construction News

Annual Dinner—6:30 p.m.

WEDNESDAY, MAY 29

Morning Session

Address (with sound movies) on mechanical handling of crossties, by R. H. White, Jr., president, Southern Wood Preserving Co., Atlanta, Ga.

Report of Committee on Manufacturing Practice Address: Active Demand for Lumber and Its Effect on Crossties, by C. Miles Burpee, purchases & stores department editor, *Railway Age*, Chicago, Ill.

Report of Committee on Concentration Yards Operations

Address: The Effect of Traffic on Crossties, by Clarence S. Burt, manager Forest Products Bureau, Illinois Central System, Memphis, Tenn.

Report of Committee on Timber Conservation Report of Committee on Moisture Gradient Closing business

Dispatchers and Carriers Begin Wage Conferences

Representatives of most of the nation's principal railroads, through the Carriers' Conference Committee, on May 7 began a series of wage conferences with the Amer-

ican Train Dispatchers Association, working toward a settlement of the union's demand for a 6-hr. day in lieu of the present 8-hr. day, with no reduction in pay. No change in the present 6-day week, which is standard on most roads, is asked, nor is there any request for increased pay. The meetings are being held in Chicago.

Says Railroads Back Faith in Future with Action

This country's number one transportation problem is still the need for a "sound policy governing the investment of tax money in transportation facilities," Gustav Metzman, president of the New York Central, declared last week in a talk at the annual dinner of the Traffic Club of Pittsburgh, Pa.

Government investment in highways, waterways, airports and airways, he reminded his audience, exceeds private investment in railways, although private investment in railways is taxable and must be self-supporting. "This railway investment cannot live alongside of government investment in competing facilities unless government investment is also made self-supporting—unless the taxpayer is given a chance to get his money back," he said. "This means that people who use publicly-owned transportation facilities would pay their way—through fair user charges and through paying a fair share of taxes for the general support of government. In other words, the shipper, whose goods are transported over public ways, would pay for the benefits he receives in the use of public facilities, just as the railway patron pays for the use of private facilities for his benefit."

The "sensible application" of such a policy, Mr. Metzman continued, "will direct the flow of competitive traffic according to economy and efficiency, not according to votes and politics. Such a policy will protect the biggest stake we have—our stake in the American system of American enterprise. And the same threat to private enterprise is now present in all industry, if government investment in war plants is not wisely handled. We cannot afford to undermine private enterprise in transportation, because to do so would undermine private enterprise in all of industry."

A sound foundation for a national transportation policy was laid in the Transportation Act of 1940, the speaker observed, but "the trouble is that, like many other building programs, this one was interrupted by war." However, he went on, the "foundation is there. It is time Congress adopted measures necessary to insure the application of the 1940 Act to the whole field of transportation—to the construction of new transport facilities built with tax funds, as well as the creation of transport operations and the regulation of rates. That is the only way our promising foundation can become a home in which both government and private transportation investments can live together."

Mr. Metzman outlined some of the steps already taken by the railroads, and others under way, to restore peace-time service and improve upon the best that they provided before the war. Improved equipment for both freight and passenger operation, new types of locomotives, training in pub-

lic relations, cooperative apprentice training, advertising, inquiry into customers' needs and desires—these were only examples of what the industry is doing to keep pace with progress, he indicated.

"In a very real sense, what your railroads are doing today constitutes a challenge to the economic statesmanship of tomorrow," he declared in conclusion. "We can see the opportunities for continued development in the nation we serve. We have faith in the future of America. And we are backing that faith with action."

Trainmen, Enginemen Plan May 18 Strike

(Continued from page 967)

"In acceding to the recommendations of the Truman board, the carriers believed they had gone as far as they could in meeting the demands of the two unions. In the face of this situation, the engineers and trainmen came back to the carriers with a demand for more than had been awarded by the Truman board. The union representatives broke off negotiations because they said we offered them 'nothing substantial'. They made no counter-proposal other than an ultimatum that their original demands be granted."

In Washington, Senator Wheeler, Democrat of Montana and chairman of the Senate committee on interstate commerce, discussed the railroad strike threat in a May 7 talk with President Truman. Mr. Wheeler told about his White House visit while discussing the coal strike in the Senate that afternoon.

"I want to see the impending railroad strike settled before it starts," he said. "This morning I went to see the President, and I suggested to him that he call the railroad executives and the chiefs of railroad employees together for the purpose of trying to settle a disastrous railroad strike which is in the offing."

"The President recommended an increase of 18½ cents for steel workers. The automobile workers received an increase of 18½ cents. The miners in Butte received an increase of 18½ cents. But the railroad brotherhoods, which have not gone on strike and which are among the more conservative labor unions, obtained an increase of only 16 cents an hour for their workers. It is not a very satisfactory situation for members of the railroad brotherhoods to say to members of other labor unions, 'We did not go on strike; we sat down and mediated'; and to be told in reply, 'You got only 16 cents when you mediated, but when we went on strike we got 18½ cents.'"

Freight Claim Division Postpones Meeting

Indefinite postponement of the annual meeting of the Freight Claim Division, which was to have been held in Chicago May 21 to 23, inclusive, has been announced by the division. According to the announcement, the postponement was caused by the curtailment of railway passenger train service resulting from the coal strike. The meeting will be re-scheduled for a later date as soon as transportation conditions permit.

With the Government Agencies

Hearings Concluded on Bulwinkle Bill

Rebuttal and union's reversal
of views mark closing
of 7-week session

Senate interstate commerce committee hearings on H. R. 2536, the Bulwinkle bill, were concluded on May 3 after sessions extending over seven weeks. The bill, which already has passed the House, would exempt railroads from anti-trust laws with respect to rate-making procedures. Meanwhile, indications are that several modifications will be included in the bill when and if it is reported to the Senate, as most members of the committee, headed by Senator Wheeler, Montana Democrat, have stated during the hearings that they do not favor the measure as now written.

Highlight of the final two days of rebuttal testimony was the declaration on May 3 by Martin H. Miller, national legislative representative, Brotherhood of Railroad Trainmen, that the union, reversing its previous favorable opinion, does not now believe that the bill "is in the best interests of railroads or their employees." In reply to Senator Hawkes, New Jersey Republican, Mr. Miller said that "more information" resulted in the union changing its viewpoint.

"When we supported the Bulwinkle bill in hearings before the House interstate commerce committee, we were of the opinion that the bill would be in the public interest and for welfare of our members," Mr. Miller said. "Now the brotherhood is of the opinion that the lawful and reasonable functions of the rate bureaus should be preserved, for they can—if they will—perform a useful service to both the shippers and transportation companies. We do not believe enforcement of anti-trust laws will interfere with the rate bureaus if they keep within their originally intended functions."

"It appears that the rate bureaus have been used very effectively in suppressing competition in making freight rates," he added. "The Bulwinkle bill will furnish the means of legalizing such a practice."

"The brotherhood believes in and has advocated the system of free competition among American industries," the speaker continued. "Therefore, in fairness to ourselves, to our employers—the railroads—and to the American people, we oppose enactment of the Bulwinkle bill. The people of the United States just cannot afford to legally permit any semblance of a let-down in the restrictions contained in our anti-trust laws."

Union Fears Totalitarianism—Charging that enactment of the bill "could

be the beginning of the end of our treasured system of free competitive enterprise," Mr. Miller added that "without free enterprise as the guiding principle in the economic life of the United States, our whole democratic way of life cannot hope to survive. We have learned full well the miserable lot of the workers, and more especially the fate of the labor unions, in the totalitarian states where cartels and state monopolies were the approved method of doing business. Low wages, long hours and poor working conditions were the economic rewards for the workers. I do not contend that the enactment of the Bulwinkle bill will immediately result in disastrous consequences to our system of free enterprise, nor do I infer that American labor will be immediately enslaved or economically affected by its provisions. Approval of this type of legislation, however, is the first step in the reversal of our whole concept of free enterprise in business."

Mr. Miller's assertions that "the Association of American Railroads has acted as the directing and coordinating organization for the railroads' part in the rate conferences" and that the association "has spent a conservative \$5,000,000 in maintaining a lobby in support of H. R. 2536 and other purposes" drew sharp criticism from J. Carter Fort, vice-president and general counsel of the A. A. R.

Denying that his group has maintained a lobby and refuting Mr. Miller's statement that the A. A. R. dealt in "propaganda" and had financed groups and individuals presenting favorable testimony toward the bill, Mr. Fort said that he did not know the reason for the brotherhood's "change of front."

"But I do know," he continued, "that since the House passed the Bulwinkle bill, there has been a dispute between the union and the railroads. President Truman appointed an emergency board whose findings, I understand, the union has refused to accept. I have no information whether or not this has anything to do with the change of front."

Mr. Fort also vigorously denied Mr. Miller's charges that the A. A. R. has retarded improvements in safety equipment on railroads, asserting that the association has coordinated research over a period of years and has spent thousands of dollars to develop the "safest brake" in the world. He said that during the war the scarcity of materials had prevented installation of the new brake on all railroads, but that they are being put on cars as quickly as they are available.

Mr. Fort also was heard again later the same day following the testimony of James E. Kilday, special assistant in the transportation and public utilities section of the Justice Department's anti-trust division. Mr. Kilday's first appearance before

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Rate Increase Case Opens Before I.C.C.

Testimony of rail executives,
Bowles, Porter features
initial sessions

Hearings on that phase of the railroads' Ex Parte 162 petition which seeks authority to make the proposed 25 per cent increase in freight rates effective May 15 on one day's notice got under way in Washington, D. C., on May 6 before the Interstate Commerce Commission's Division 2. Also involved is the Ex Parte 148 proceeding as reopened by the commission for the purpose of determining whether immediate relief to the railroads should take the form of restoring the increases (averaging about 4.7 per cent) originally authorized in that proceeding and suspended since May 15, 1943.

Commissioner Aitchison, chairman of Division 2, is presiding at the hearings, and other members regularly present are Commissioners Mahaffie, Splawn and Alldredge. Also sitting on the bench is a cooperating committee of seven state commissioners. To expedite proceedings, the commission on May 8 opened a "side show" session at which presentations of various shipper interests were heard by Examiner Witters.

Highlighting the opening sessions was the testimony of Dr. Julius H. Parmelee, director of the Bureau of Railway Economics of the Association of American Railroads; Ralph Budd, president of the Chicago, Burlington & Quincy; Gustav Metzman, president of the New York Central; Walter S. Franklin, vice-president in charge of traffic of the Pennsylvania; Chester Bowles, economic stabilization director, and Price Administrator Paul A. Porter. The latter two testified in opposition to the railroad application.

Dr. Parmelee's Statement—Dr. Parmelee, the first carrier witness, told the commission that "with wages and prices at present levels and freight rates remaining at prewar levels, the railroads will suffer an estimated net loss of \$345,000,000 in 1946, based on the anticipated volume of traffic."

"Recent increases in wages, plus others made during 1941 and 1943, make the present wage levels nearly 48 per cent higher than before the war," he continued. "and will add an estimated \$1,355,000,000 to railroad operating costs in 1946. Increased prices of supplies, materials and fuel since 1939 will add another \$500,000,000, making the total increase in these expenses \$1,855,000,000. Freight rates, meanwhile, are at or below the levels of 1939, while the increase in the average revenue for hauling a passenger one mile has been less than 2 per cent."

The witness said that during the war years the railroads were able to meet such increases in unit costs even though prewar rates prevailed "only because of the very large volume of traffic handled."

"With the cessation of hostilities in August, 1945," he added, "there began a sharp decline in freight traffic, which extended to the passenger traffic with the passing of the peak of demobilization troop movements in December, 1945. These declines in traffic will continue, because it is estimated that 1946 freight traffic will be 19 per cent less than that of 1945 and 25 per cent less than the peak war year of 1944, while passenger traffic is estimated at 29 per cent less than in 1945 and 32 per cent less than in 1944.

Dr. Parmelee pointed out that despite the traffic volume in 1945, the railroads would have shown a net loss had present wages and prices been in effect. He estimated that with the smaller volume of traffic this year, the railroads would earn in 1946 a net railway operating income, before charges, of less than one-third of 1 per cent on their investment after depreciation.

"This figure," he said, "is in contrast to the net railway operating income of not less than \$1,000,000,000 a year, or approximately 4½ per cent of their investment after depreciation, which railroads should earn if they are to meet their obligations and maintain the credit they must have to continue making the improvements which are necessary for cheaper transportation now and in the future."

Costs Still Rising—The witness estimated that if the I. C. C. grants the railroads' application, including the request to continue present passenger fares, the additional revenue on the anticipated freight traffic of 1946, even if increased rates could have been in effect for the whole year, would be approximately \$998,000,000, "or not much more than one-half the increase which has already taken place in wages and prices." He called to the commission's attention the fact that costs are still rising, traffic is still declining and that "it is impossible at this time to make increased rates effective for the entire year of 1946."

"After the payment of interest, rents and other fixed charges, the railroads will have a deficit of \$345,000,000 for the year," Dr. Parmelee predicted. "This does not take into account dividend payments to stockholders. Both the amount and rate of dividends paid by rail carriers during World War II were considerably below those paid prior to World War I and were much less than the annual averages of the decade prior to 1930. Dividends paid during World War II averaged only \$221,000,000 per year, or about 2.7 per cent annually on outstanding railroad stock."

Dr. Parmelee supported his testimony with a large number of statistical exhibits. He said that "with costs continuing to rise and volume of traffic and revenues going down, railroads have passed the point where they can meet the need for efficient transportation with freight rates at prewar levels."

"Railroads and the service they rendered during the war contributed vitally to the success of the war effort," he continued. "At the same time, the record-breaking

freight and passenger traffic handled by them made it possible to meet rising costs of operation, pay a total of \$3,876,000,000 in federal income taxes between 1941 and 1945 and earn an average return of 4.97 per cent on their property investment after depreciation.

"With termination of the war, however, radical changes took place and are still under way. The principal concern of the railroads is now centered on the volume of traffic they can obtain and the cost levels at which they can handle such volume. Declining traffic and increasing prices and wage rates, therefore, occupy an important place in any survey of the current and prospective position of the railroad industry."

Reorganizations Endangered—Another witness, Merrel P. Callaway, trustee of the Central of Georgia, warned that "unless freight rates are increased in the amount necessary to meet additional wages and the rising costs of materials, the situation of the nation's railroads would be most precarious and most uncertain."

"The Central of Georgia is in the process of reorganization under a plan approved by the I. C. C.," Mr. Callaway said. "It was assumed this plan would enable the railroad, under all ordinary conditions, to meet its operating expenses and the fixed and contingent charges which the plan provides. Nevertheless, this company, with property valued by the I. C. C. at more than \$100,000,000 and estimated operating revenues of \$28,264,321 for 1946, could not, under the present rates, earn enough to meet its operating expenses and taxes and to pay even the minimum interest and preferred stock dividends set up under the commission's plan to say nothing of dividends to the holders of its common stock, all of which will be issued to former creditors and bondholders."

Mr. Callaway estimated that in view of recent wage and cost increases, a May 15 increase of 26.4 per cent in freight rates will be required to allow earnings sufficient to meet minimum charges on the obligations of his railroad, as reduced by the reorganization plan approved by the commission.

Mr. Budd asserted that "diminishing freight and passenger revenues on one hand, and increased costs of labor, material and supplies on the other, make it inescapable that the railroads, like other industries, must increase their charges." He said refusal of the railroads' request for higher freight rates would result in a curtailment of work and the postponement of replacements "which will jeopardize the amount and quality of transportation and cause commerce to suffer."

"The alternative to permitting the railroads to earn the revenue needed to maintain their credit and keep abreast of the progress of science and industry is to enforce their deterioration and invite nationalization, which would cost substantially more than to permit the railroads to earn enough to sustain and improve themselves under private ownership," he said.

Calls Dr. Parmelee "Optimistic"—Mr. Budd pointed out that the wages of railroad employees since January 1 have been 48 per cent higher than before the war and that prices for materials and supplies

are 44 per cent higher "and certain to go higher." He said that "these high levels will prevail whatever the volume of traffic may be."

"Delays to reconversion and the production which may have been occasioned by strikes and the uncertainty of crop yields may make Dr. Parmelee's estimates overly optimistic," he added. "Each day that passes while freight rates are so far out of line with wages and the prices which railroads must pay for everything they buy increases the difficulty of dealing adequately with the needs of the railroads."

The Burlington president told the commission that during the war railroads were able to pay 26 per cent higher wages, increased costs for materials and the highest taxes in history and "yet maintain prewar freight rates and earn a substantial though declining net income, because the volume and character of traffic permitted economical handling of tonnage and increased earnings per ton-mile of freight."

Summarizing the vast changes in railroad operating revenues since 1920, and laying particular emphasis on the World War II era, Mr. Budd asked, "How are the railroads going to fare in the future with \$2,000,000,000 less operating revenue than in 1945, in the face of additional costs of nearly a billion dollars per year for wages, materials and supplies?" He said that although net railway operating income declined after 1942, passenger traffic was so heavy that "to a considerable degree the declining profits from freight have been obscured by the large profits still being made from passenger business. Although it is clearly the business of railway management to keep everlastingly at it to increase efficiency, it is impossible to suddenly overcome the added expense of increased wages and material prices and provide the exacting freight service peace-time industry demands," he continued.

In conclusion, Mr. Budd said that "the facts confronting the railroads constitute the strongest showing that the proposed increase in freight rates should be made effective immediately," adding that "there is nothing speculative about the fact that traffic is declining rapidly or that wage rates and prices of materials and supplies have increased tremendously while freight rates remain at pre-war levels." He pointed out that although opportunities to improve railroad plant, fixed property and equipment are "as great as ever," capital expenditures must be expected to produce either sufficient savings or increased earnings to justify them.

Largest Deficit in 100 Years—Mr. Franklin, whose testimony consumed most of the May 7th session, warned that a 25 per cent increase in freight rates will "probably not be adequate for the railroads if traffic continues to slow down." He also revealed that the Pennsylvania's deficit of \$12,511,349 for the first quarter of 1946 was the largest in its history. He said the proposed increase, including the smaller increases on mine, forest and other products, would bring the Pennsylvania approximately \$96,000,000, a boost in revenue of about 18 per cent.

The witness also pointed out that the estimated \$345,000,000 deficit in net income

for the Class I roads in 1946 includes the retention of the 10 per cent increase in wartime passenger fares. He said the objective of chief traffic officers was to "so increase the freight rates, after allowing the continuation of the present increase in passenger fares under Ex Parte 148, that there would be a net railway operating income of approximately \$1,000,000,000, resulting in a net income of approximately \$500,000,000."

"You don't think that a net income of \$500,000,000 will keep all the railroads out of trouble?" inquired Commissioner Maffie.

"No, unfortunately, there will be some still in trouble," the witness replied.

"The increased freight rates sought by the railroads are the minimum immediately required by them to meet the critical situation created by rising costs and declining revenues," Mr. Franklin continued. "The railroads did not want to advance freight rates any more than was absolutely necessary to provide sufficient net income to keep them in efficient working condition to properly serve the public. This, of course, includes a sufficient net income to earn a reasonable return that may at least pay the fixed charges and leave something for the owners of the property. It only was with great reluctance that it was finally determined to fix the overall figure at 25 per cent. One of the reasons that railroads held the proposed increase to a minimum is to prevent dislocation of industry and an appreciable diversion of freight traffic to other forms of transportation.

Passenger Traffic Slumping — The Pennsylvania vice-president declared that the downward trend in passenger and freight traffic occurred "well before the strike troubles in the steel industry and the present strike in the coal industry." Pointing out that troop movements produced more than 33 per cent of the total passenger revenue

on many roads during the war, he said that "this traffic has definitely decreased and will soon become a comparatively small percentage of the total passenger traffic of the railroads."

"The costs of handling freight traffic have so increased that with the decline in the passenger traffic and the removal of the net income from that service, there must be definite increase in net income derived from freight traffic, which can only be obtained through an increase in freight rates," he added. "Although the proposed increase is not a straight percentage rise for all commodities, the increase of 25 per cent is carried out to the extent that the railroads thought possible with the least disturbance to present relationships and with the maximum that could be secured without the loss of an appreciable amount of traffic to the trucks or water lines."

The speaker pointed out that there have been increases in the tonnage moved by truck and that "the total movement by truck and water will go up as these carriers assume their normal position in the transportation field." He stated that the same conditions also will apply in the private automotive, bus and airplane fields as new equipment becomes available.

"Regardless of the position of any other government departments," he concluded, "the I.C.C. must recognize its responsibility that reasonable passenger fares and freight rates must produce sufficient operating income to yield, after expenses and all charges, a proper return to enable the railroads to continue to render efficient service to the public."

Mr. Metzman told the commission that "unless very prompt relief is afforded the railroads in the form of increased freight rates, they will not only continue to be operated as a substantial deficit that will destroy their credit, but they also will be

forced to curtail greatly, if not to suspend entirely, their rehabilitation programs."

Declaring that the New York Central has already incurred a deficit in net income in 1946 and that "the estimated 1946 revenue will not be sufficient to pay operating expenses," Mr. Metzman said that the road "has been optimistic as to the future of the railroad industry and has had faith that it would be permitted to operate as a solvent institution."

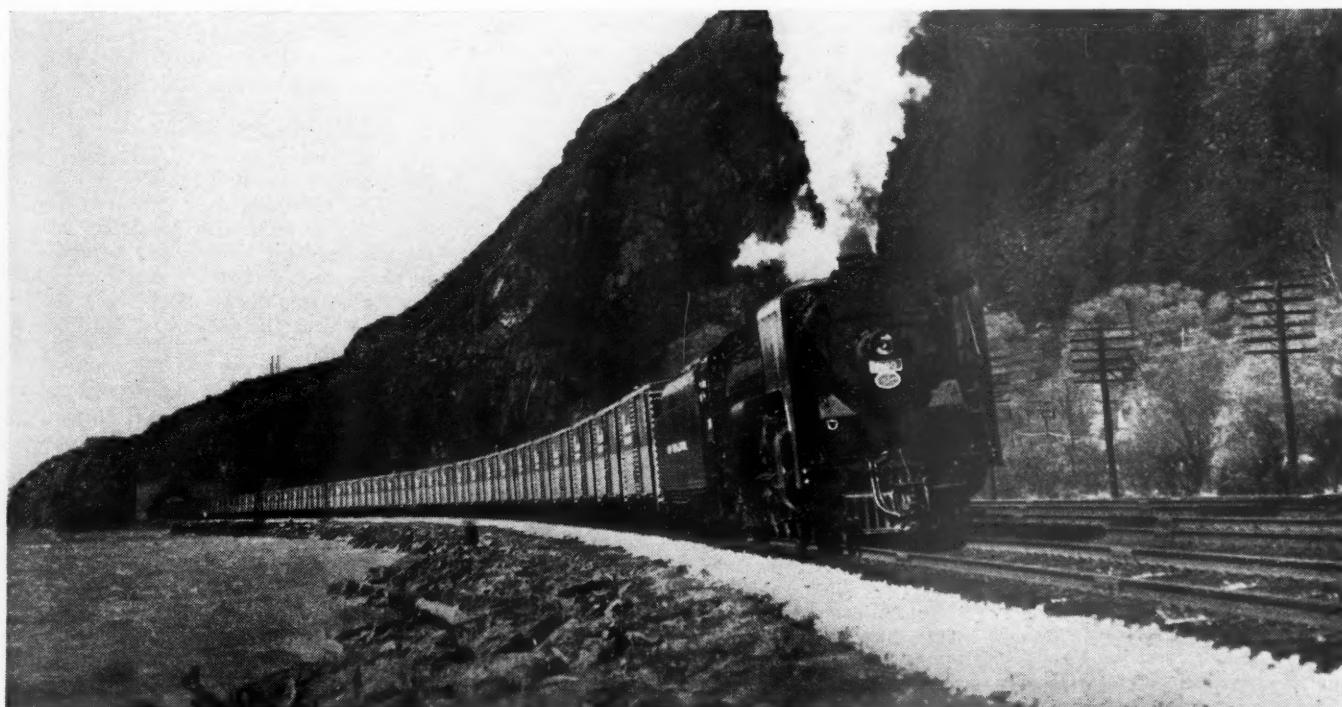
"Our earnings during the war years were devoted to maintaining our properties and reducing our funded debt," he continued. "Since 1932, there has been a net reduction of about 23 per cent in the outstanding debt of the N. Y. C. system and about 30 per cent in the fixed charges. For 11 years after 1931, no dividends were paid to our stockholders. Dividends were resumed in 1942, and have been paid for four years, the average per year being only \$1.375 per share."

"Carry Back" No Solution — Citing the increased costs of materials necessary for railroad operation, Mr. Metzman said that "if the present additional costs of railroad operation, saddled upon the railroads within the last few months, are not promptly offset by an increase in freight rates, obviously the railroads in general, and the New York Central in particular, would have no option but to suspend the present program of rehabilitation."

The witness made it clear that the carry-back provisions of the Revenue Act and such reserves as may have been accumulated due to the railroads' conservative financial policy "will not solve the present critical situation." He held that while the balance of net working capital and cash assets on his railroad are substantial, "they cannot be said to be large in view of the requirements ahead of us."

"The New York Central has already in-

* * *



The New York Central's new high-speed freight train, the "Pacemaker," making its first run from Buffalo to New York

curred a deficit of \$6,235,000 in net income for the first three months of this year, after taking a ratable proportion of the income tax carry-back available," he concluded. "April will add about \$2,151,000 to that deficit, and estimated operating revenues of \$560,000,000 for the year would be insufficient to pay operating expenses."

Terming the situation in general as "critical," Mr. Metzman reported that before the war the New York Central averaged less than \$70 a car revenue on carload traffic, which, he said, jumped to \$92.46 in 1943 and then declined to \$89.18 in 1945.

"Now that the heavy traffic in war materials is past," he said, "the length of the average haul is approaching our pre-war figure. Our average revenue per car for the first two months of this year has receded to \$84.26 or \$8.20 below the 1943 peak. The average in January was \$85.70 and in February, \$82.69."

The unexpected appearances of Mr. Bowles and Mr. Porter at the hearing were arranged by Edward H. Miller, special assistant to the attorney general, who was "loaned" to the Office of Price Administration and Office of Economic Stabilization as counsel in their protest against the railroads' proposal.

Porter Makes a Concession—Although conceding that the carriers may be entitled to "some increases," Mr. Porter testified that "the drastic rate increases which the railroads seek would be seriously detrimental to the stabilization program."

"The railroad industry is entitled by law to reasonably remunerative rates just as industries subject to emergency price control are entitled to generally fair and equitable prices," he continued. "Moreover, it would be injurious to the whole economy if the railroads, which are the backbone of our transportation system, were not able to earn a return sufficient to enable them to provide adequate and efficient transportation service."

"The railroads made a remarkable contribution to the prosecution of the war," he added, "but the nation depends on their service just as vitally in time of peace. To recognize that the railroads may be entitled to a rate increase—and a preliminary inspection of their petition and exhibits suggests that perhaps some increase may be needed—is not to answer the question 'how much?'"

Mr. Porter told the commission that if the O. P. A. fails in its efforts to halt inflation, the cost to the railroads would be much greater than revenue they might procure from any rate increase awarded them for a period between May 15 and the conclusion of an "adequate hearing."

In expressing the opposition of the O. P. A. to "any interim increase" to be followed by a "later adjustment" after hearings, Mr. Porter urged what he called "adequate hearings" in order to assure "proper distribution of such increases as may be found necessary among the broad categories of commodities affected." He declared that the O. P. A. would not be able to handle the adjustments in price ceilings made necessary by an interim increase and then handle any later adjustment that would be necessary following "full hearings."

In reply to inquiries from the commission as to the subsidies made to high-cost pro-

ducers under O. P. A. procedures and whether or not such subsidies would be made available to railroads which would show they were having difficulty in meeting their payrolls, Mr. Porter said that the O. P. A. had asked the continuance of present subsidy regulations scheduled to expire on June 1.

J. Carter Fort, vice-president and general counsel for the A. A. R., who is representing the railroads in the hearings, drew acknowledgments from both Mr. Porter and Mr. Bowles that the railroads have not had adjustment of pre-war freight levels, despite a 48 per cent increase since 1941 of the carriers' wages and supply costs.

Bowles on "Probabilities"—Also requesting that the railroads' petition be denied until there can be a "full hearing," Mr. Bowles said that "it is important to keep in mind the importance of the timing of any readjustments of freight rates. Their effect upon prices will depend in great part upon the margins available for their absorption. I think it is probable that the margins indicated in the recent profit statements will prove to be about the lowest that we shall see during the transition period."

Urging the commission to examine carefully the railroads' need for a permanent increase before granting any adjustment whatsoever, Mr. Bowles declared that "if increases in rates which could be absorbed at a later stage of the transition would do serious damage to the economy now, then it is in the interest of the railroads to do everything possible to postpone the increase until it can be absorbed."

Mr. Bowles said that one of the greatest aids to the war effort was the stability of transportation costs, which, he declared, were "especially important" because they touched upon practically every phase of production and distribution.

Asserting that the country should be allowed to absorb "a round of major readjustments in basic rates that has just been completed," he declared that "as volume increases and goods begin to flow more normally, the present bulge in production costs will subside. Then the national economy will be able to absorb, without detri-

* * *



William J. Kennedy

The former chief of the Cleveland, Ohio, regional rent control office of the Office of Price Administration, who has been appointed by President Truman "public" member and chairman of the Railroad Retirement Board, with headquarters at Chicago

mental effect on prices, increased costs that would presently cause a dangerous tension."

Harvey M. Johnson, chief traffic officer of the Missouri Pacific, and John E. Tilford, vice-president in charge of traffic of the Louisville & Nashville, followed the stabilizers. Pointing out that livestock and agricultural products comprise a large part of the traffic and revenue of Western railroads in peacetime, Mr. Johnson said that "rates on such commodities must be raised if the Western carriers are to take in additional revenue to carry on the job of rendering adequate and efficient transportation service to the public."

"In 1940," he continued, "agricultural products, animals and animal products produced approximately 20 per cent of the traffic and more than 28 per cent of the revenue of the Western railroads. For this reason, it is imperative that rates on these commodities be increased to overcome the Western carriers' great need for additional revenue."

Mr. Johnson told the commission that rates on these commodities have not been increased in any general rate case in the last 20 years and that the proposed increment will not retard the free movement of such commodities, "particularly in view of the favorable prices on farm products now prevailing." He declared that the average of four estimates indicates that the annual saving to the railroads resulting from the complete elimination of all land-grant deductions which is to become effective October 1 would be \$27,490,000. "Repeal of the statute requiring land-grant deductions on government traffic will not substantially benefit the railroads in peacetime," he concluded.

Mr. Tilford testified that on the current basis of rates, the Southeastern railroads will not earn enough on the volume of traffic expected in 1946 to meet increased wages which have been authorized and increasing costs of materials and supplies which have already been incurred and are anticipated this year.

Stockpiles Depleted—"Operating revenues of the Class I railroads in the Southeastern district," he said, "were 19 per cent less in the first quarter of 1946 than they were in the corresponding period of 1945, while the effect of increased wages and rising prices was such that the net railway operating income of these carriers declined more than 46 per cent. The results for the remainder of the year cannot be expected to be as favorable as those for the first quarter because of the accelerating decline in traffic and the continuing increase in costs."

Mr. Tilford said that most of the materials and supplies used by the Southeastern railroads during the first quarter of this year were from stockpiles built up in 1945 and were charged out at the lower commodity prices prevailing in 1945 when they were purchased. He estimated that the L. & N. this year has paid 23 per cent more than 1945 prices for various commodities.

"The modest rate increases allowed in 1941 were subsequently suspended as the rising volume of traffic, heavier average loading of cars and longer average hauls of war-time freight enabled the railroads to meet their costs without them," he said. "This situation is now reversed. Volume of

traffic is falling, average carloadings are going down and average length of haul is declining. The railroads now have to do considerably more work to earn a gross dollar than they did in the war years, and, as a result of increases already made in wages and prices, do the work at a much higher unit cost. And these trends give every promise of continuing."

Discussing the suggestion that the proposed increases in railroad freight rates and charges would be substantially offset by the diversion of traffic to other forms of transportation, Mr. Tilford predicted that "obviously an increase in railroad rates will cause some diversion, but both truck and water carriers are facing increased wage and material costs just as are the railroads, with the same kind of need for increased rates. The increases which the railroads are now compelled to seek will raise an umbrella over their competitors, but the railroads do not believe there will be a diversion of traffic from them sufficient to impair the increased revenue which they must have to meet the increases in wages and cost of materials."

Hearings Concluded on Bulwinkle Bill

(Continued from page 971)

the committee was reported in *Railway Age*, April 20, page 835.

Mr. Fort said he wanted to correct what he described as "a fuzzy record" after Mr. Kilday had told the committee that the A. A. R. refused to give Justice Department agents access to the association's files.

A. A. R. Files Examined—"I think that leaves a fuzzy record," Mr. Fort proclaimed, following Mr. Kilday's description of experiences in attempting to obtain access to the A. A. R.'s files and records. "The Justice Department in 1942 sent a large staff to the headquarters of the A. A. R. to examine the files. These agents were given access to both records and files in my office, the president's office and other offices throughout the building."

Mr. Fort added, however, that the association had denied a Justice Department request to examine its files after the department had filed its anti-trust suit against the railroads in Lincoln, Neb. The A. A. R. executive pointed out that this refusal was proper since the court suit was filed and the department was in a position to attempt to procure the court's direction to examine the files.

Also appearing on May 3, William L. McGovern, deputy attorney general for the State of Georgia, urged the committee to withhold action on the Bulwinkle bill until the Supreme Court renders a decision on Georgia's suit against the railroads. A former special assistant attorney general, Mr. McGovern told the committee that the hearing testimony is so confused that all should be disregarded and "vacuum consideration" be given the bill. He claimed the Georgia and Lincoln, Neb., cases would provide a "record of experience."

Continuing on May 2 rebuttal testimony begun earlier in the week, as reported in *Railway Age*, May 4, page 927, Judge R. V. Fletcher, vice-president in charge of

research of the A. A. R., told the committee that between 1938 and 1945 a total of 57,233 independent rate applications were filed with tariff bureaus by the railroads. In making this report "in an attempt to show that the A. A. R. does not prevent independent action on the part of the carriers as charged by the Justice Department," Judge Fletcher added that only 229 went to a higher rate committee of the railroads' appellate system.

In answer to the charge that the government paid excessive rates during the war, Judge Fletcher declared that "no evidence has been produced which would show that any of the rates were illegal."

"This Bell-Ussery-Hammer report to the Bureau of the Budget did no more than to express the opinion of certain gentlemen that some of the rates were too high," he continued. "The railroads reduced the rates on government traffic in many thousands of instances, but if in any case the tariff rates were too high, there is a remedy before the Interstate Commerce Commission which exists not only for the purpose of regulating rates, but also of awarding reparation in instances where improper rates may have been collected."

The witness pointed out that the experience of shippers and railroads "makes it certain that in giving consideration to what rates shall be proposed to the I. C. C., there must be some conference and discussion between and among railroads and shippers of just what rates can lawfully be proposed to the commission."

"Otherwise," he continued, "chaos would reign supreme and the country would revert to primitive conditions far more extreme than prevailed in the horse and buggy days."

Urging early enactment of the Bulwinkle bill to "clear up present uncertainty and permit the railroads to go forward in the very intense competitive struggle," Judge Fletcher emphasized that "the railroads are endeavoring to comply with the law and are concerned only with such clarification of the situation as would permit them to devote their time and attention to the serious problems of meeting the demands of the public for transportation in a way which would permit competition so far as competition is possible in a regulated industry."

"Railroads paid their own way during World War II as the result of the coordination made possible by the A. A. R.," he said. "This was in contrast to the billion-dollar deficit incurred by the government during World War I in operating the railroad transportation system."

Under Arnold's Shadow—Continuing his remarks, Judge Fletcher described Thurman Arnold, former assistant attorney-general in charge of anti-trust prosecution, as the "hierarchy of the Justice Department" in the current attack against the railroads. He pointed out that, according to the rules prescribed by Mr. Arnold, the railroads' present action in filing a petition with the I. C. C. for a 25 per cent increase in freight rates would be a violation of the anti-trust laws.

"Mr. Arnold has testified before this committee that areas in which rates may not be made are all areas, except joint through rates," the speaker declared. "Mr.

Wendell Berge, present assistant attorney-general in charge of anti-trust prosecution, is of that opinion because he said no immunity should be granted railroads in fixing rates. Yet, the I. C. C. told the railroads that they must agree on a uniform scale of rates. If the railroads cannot agree on rates under the law, they cannot possibly carry out the I. C. C. order."

Referring to the Supreme Court's decision to consider Georgia's suit, Judge Fletcher asked, "What is the area of permissible collaboration? How far can we go?" He expressed the opinion, however, that the court will not say just how far the railroads may go, in spite of the Justice Department's interpretation of the anti-trust laws that "the law needs to be clarified so far as the railroads are concerned." Concluding his statement, Judge Fletcher said that the A. A. R. had no affiliations with the so-called "Western agreement," which, he said, was framed a year before the A. A. R. was organized.

Also testifying on May 2, Roland Rice, general counsel of the American Trucking Associations, urged passage of H. R. 2536. Mr. Rice said that enactment would not "kill" the Georgia or Lincoln, Neb., cases. He told the committee that the A. T. A. had no control over the rate committee for trucks as was illustrated in the organization charter of the rate-making structure exhibited in earlier hearings by the Justice Department.

Supply Trade

Charles L. Heater, vice-president of American Steel Foundries, has been elected a director of the **General Steel Castings Corporation**.

D. Lynn Churchwell, **Carl M. Henry** and **R. H. Wixson** have been appointed manufacturer's agents for the **Aircraft Screw Products Company, Inc.**, Long Island City, N. Y.

Charles Rager has been appointed St. Louis (Mo.) district manager of **Fairmont Railway Motors, Inc.**, with headquarters at St. Louis, succeeding **W. G. Day**, who has resigned because of ill health.

E. C. Johnson, Jr., and **D. M. Graves**, recently released from the Navy, have become associated with the **Rail Joint Company**. Mr. Johnson will be located in San Francisco, Cal., and Mr. Graves in New York.

Sterling Engine Company has moved its New York office from the Chrysler Building to 401 Fourth Avenue, New York 16. In the new quarters, the announcement said, the firm will have, facing Fourth avenue, a large showroom in which will be exhibited Sterling marine and industrial engines.

The Dayton Rubber Manufacturing Company has moved its New York offices and warehouse to the Harborside Terminal, 34 Exchange Place, Jersey City, N. J. The new, larger warehouse space will enable the company to carry greater stocks

of V-belts and fan-belts from which immediate shipments can be made, the announcement said.

J. W. Sheffer has been appointed general improvement engineer of the **American Car & Foundry Co.**, with headquarters in New York. He has been with the company since 1908. **E. A. Watson** has



J. W. Sheffer

been appointed assistant general improvement engineer; and **H. F. Schwarting** has been named general electrical engineer, with headquarters at St. Louis, Mo.

V. H. Peterson, manager of railroad sales of the eastern division of **Fairbanks, Morse & Co.**, has been promoted to manager of the recently-combined Diesel Locomotive and Railroad divisions, with headquarters at Chicago. He succeeds **John W. Barriger, III**, whose election to the presidency of the Chicago, Indianapolis & Louisville was reported in the *Railway Age* of May 4.

William C. Polk has been appointed national railway representative for the Clark Tractor division of the **Clark Equipment Company**, Battle Creek, Mich. His headquarters will be in Chicago.

In his new position, Mr. Polk, just released from three years' service in the



William C. Polk

Navy, will coordinate all activities applicable to the special material-handling and industrial haulage problems faced by the railroads throughout the nation, with

particular emphasis being placed on unification of rail freight transits. Before entering the service, Mr. Polk was sales representative with the Clark Tractor Battle Creek division. He had previously been engaged in freight traffic work with the Southern Pacific.

The **Champion Rivet Company**, Cleveland, Ohio, manufacturer of welding electrodes, has made the following appointments for the sale of its welding products: **F. J. Sweeney**, for the Cleveland and Akron, Ohio, district; the **Terminal Engineering & Supply Co.**, Pittsburgh, Pa., for the Pittsburgh district, and the **Norton Welding Equipment Company**, Milwaukee, Wis., for the state of Wisconsin.

The **Hewitt Rubber Corporation** has changed its name to **Hewitt-Robins Incorporated**, thereby bringing in the identity of its wholly-owned subsidiary, **Robins Conveyors, Inc.** **Harold H. Von Thaden**, first vice-president of Robins Conveyors, was elected a director of the parent company. Plans for building an addition to the Robins Conveyors plant in Passaic, N. J., were announced.

George W. Usherwood has been appointed Eastern sales representative of the **J. S. Coffin, Jr., Company**, Englewood, N. J. Mr. Usherwood joined the New



George W. Usherwood

York Central in 1916 as an apprentice in the air brake department, serving successively as air brake foreman, assistant air brake instructor, and air brake instructor. In 1929, he joined J. S. Coffin as service representative, which position he held until his present appointment.

Carl A. Ten Hoopen, for 12 years sales manager of the Cyclone fence central district of the **American Steel & Wire Co.**, a subsidiary of the United States Steel Corporation, has been appointed eastern district sales manager, with headquarters in Newark, N. J. He succeeds **S. W. Burr**, who will handle special sales assignments. **Thomas S. Humrickhouse** will succeed Mr. Ten Hoopen. **E. B. Wilhelm** has been appointed manager of the newly-established sales district for Michigan, with headquarters in Detroit.

James A. Cook, whose promotion to executive vice-president of the **Standard Forgings Corporation**, with headquarters

at Chicago, was reported in the *Railway Age* of May 4, was born at Louisville, Ky., on August 7, 1899, and entered the service of Standard in 1920 as a salesman at Chicago. In 1925 he was advanced to manager of southwestern sales, with headquarters at St. Louis, Mo., and in 1934 he was further advanced to general sales agent at Chicago. In 1937 Mr. Cook was elected a vice-president, remaining in that position until his new appointment.

During 1945, the **Baldwin Locomotive Works** received orders for 691 steam locomotives and 837 were shipped, according to the annual report which was released this week. Orders were received for 187 Diesel-electric locomotives, and 233 were shipped. Total unfilled orders on the books at the beginning of 1945 amounted to approximately \$106,000,000. At the end of the year they had decreased to \$82,866,677. Total billings of the company and its wholly-owned subsidiaries totaled \$155,954,003, a drop of 26 per cent under the 1944 billings of \$210,575,974. The cost of materials and supplies purchased was \$88,493,348, and the provision for all taxes amounted to \$12,273,003. Provision for the federal income and excess profits taxes alone was equal to \$5.41 a common share on the stock outstanding at the year-end, and the provision for all taxes was equal to \$6.54 a share.

Maintenance and repairs were carried out in an amount considered adequate to preserve the company's property in good working order, the report continued. The amount added to property, plant and equipment was \$2,969,234, and the amount added to depreciation reserve was \$1,425,007.

Selected items from the income statement, after provision for renegotiation of war contracts, follow:

	1945	1944
Sales	\$155,954,003	\$210,575,974
Profit before taxes, depreciation, amortization and interest	20,709,794	27,159,198
Taxes on income and other taxes	12,542,003	18,671,087
Depreciation	1,425,007	1,410,185
Amortization of emergency facilities	2,638,414	908,239
Interest	334,422	405,222
Net profit for the year	3,769,948	5,764,465
Non-recurring charges	256,716	.....
Reserve for contingencies	.....	500,000
Balance of net profit transferred to surplus	3,513,232	5,264,465

OBITUARY

George S. Hayes, director and purchasing agent of the **Okonite Company**, Passaic, N. J., died May 3, at the Community hospital, Montclair, N. J. He was 82 years old.

G.W.R. To RETAIN WOMEN ANNOUNCERS.—Recruited during the war to fill in vacancies, women train announcers have proved themselves well suited for the work and 40 of them are now employed at principal stations throughout the (British) Great Western system, which plans to retain them and take on others at Wolverhampton, Pontypridd, Westbury and Carmarthen when the installations are completed. Each has her own "fans" and there is much controversy among passengers as to which station has the best announcer.

39

**LIMA-BUILT
2-8-4 STEAM LOCOMOTIVES**

sPEED PERE MARQUETTE traffic



TO meet steadily increasing demands for more rapid movement of heavy freight traffic, Pere Marquette has continued to add to its fleet of Lima-built 2-8-4s, so that today thirty-nine of these modern steam locomotives are speeding the freight service on its lines.

LIMA LOCOMOTIVE WORKS



INCORPORATED, LIMA, OHIO

Equipment and Supplies

LOCOMOTIVES

Railroad Diesel Locomotive Inventory 4,603,930 hp.

According to statistics compiled by the *Railway Age*, there were 4,387 Diesel locomotive units in service on domestic railways as of December 31, 1945, including 3,946 owned by Class I railroads, excluding terminal and switching companies, and 441 owned by terminal and switching companies and Class II and III roads. Class I railroads were operating 1,571 Diesel road locomotive units having a total of 2,347,260 hp. and 2,375 switchers with a total of 1,920,910 hp.

The Diesel locomotive inventory of Class I roads was increased in 1945 by 773 units, of which 267 were of 1,350 hp., 150 of 2,000 hp. and the remainder of 1,000 hp. or less.

Diesel Locomotive Units in Service

Horsepower	Freight Locomotive Units		Passenger and Comb. Pass. & Frt. Locomotive Units		Total
	No.	Total Hp.	No.	Total Hp.	
2,000	.....	.....	369	738,000	369
1,800	.....	.....	37	66,600	37
1,350 or 1,500	1,048	1,414,800	48	64,800	1,096
1,200	.....	.....	19	22,800	19
1,000	8	8,000	24	24,000	32
Less than 1,000	12	4,300	6	3,960	18
Total Road Loco. Units	1,068	1,427,100	503	920,160	1,571
Switching Loco. Units		(Averaging approx. 809 hp. per unit)			2,375
Total Rd. & Sw. Loco. Units					3,946
					4,268,170

Note:—441 Diesel locomotive units of 335,760 total horsepower are estimated to be in service on switching and terminal companies and on class II and III railroads.

FREIGHT CARS

The BALTIMORE & OHIO is inquiring for 200 50-ton automobile box cars.

The DELAWARE & HUDSON is inquiring for 200 to 400 50-ton gondola cars.

The MISSOURI-KANSAS-TEXAS is inquiring for 100 70-ton covered hopper cars.

The NORFOLK & WESTERN is inquiring for 250 50-ton box cars.

The DONNER-HANNA COKE CORPORATION is inquiring for 100 70-ton triple hopper cars.

The GULF, MOBILE & OHIO has ordered 1,000 50-ton box cars from the American Car & Foundry Company.

The NEW YORK, NEW HAVEN & HARTFORD is inquiring for 30 50-ton air dump cars.

The ILLINOIS TERMINAL has ordered 200 50-ton 40½-ft. box cars from the American Car & Foundry Co.

SIGNALING

The CHICAGO & EASTERN ILLINOIS has placed an order with the Union Switch & Signal Company for a Style C control machine with 19 levers, along with the necessary searchlight and color-light signals.

Style M-2 electric switch movements and relays, for installation at Danville, Ill., to protect the crossing of the C. & E. I., Peoria & Eastern (New York Central) and Wabash, and to replace the existing protective facilities at North Yard and Danville Junction interlockings. The installation work will be done by railroad forces.

Financial

ATLANTIC COAST LINE.—*Annual Report*.—Operating revenues of this road in 1945 totaled \$138,696,620, compared with \$155,946,298 in the preceding year, a decrease of 11.06 per cent. Operating expenses were \$123,207,152, compared with \$93,834,279, an increase of 31.3 per cent. Tax accruals were \$6,400,000, compared with \$44,000,000. Fixed charges were \$4,656,312, compared with \$5,501,977. Net income was \$5,531,634, a decrease of 65.6 per cent under the \$16,101,392 reported for 1944. Cur-

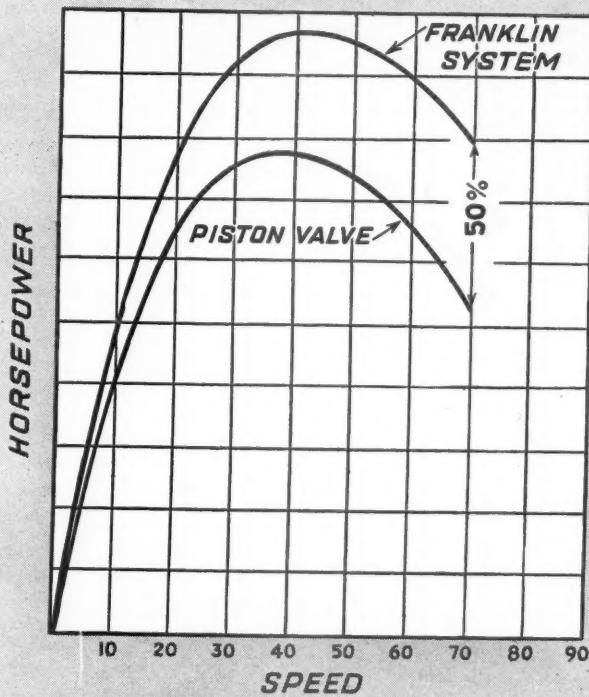
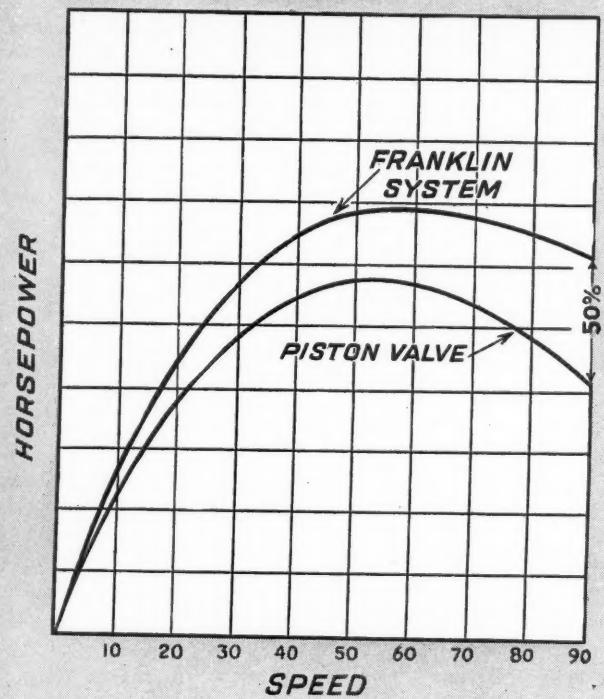
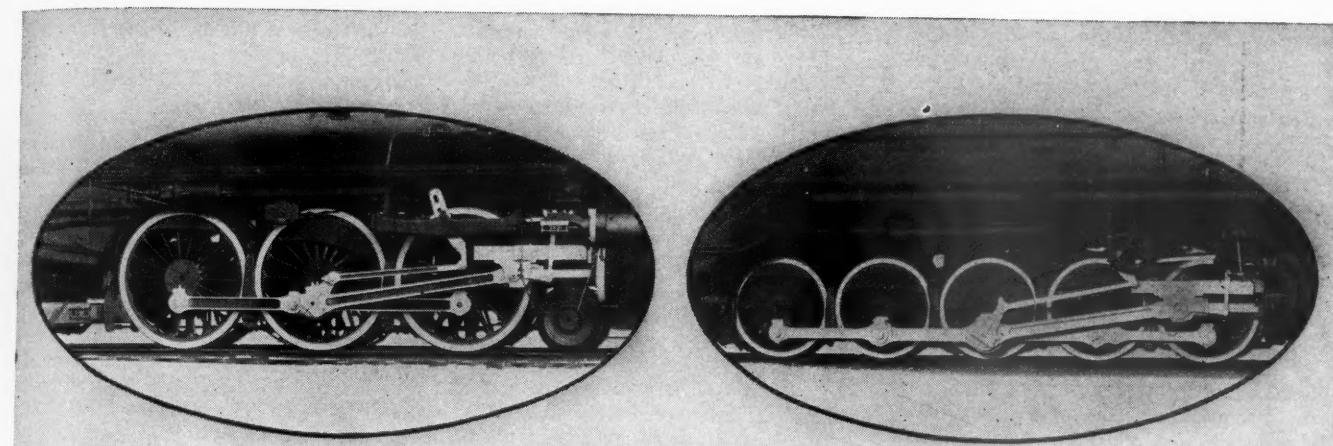
At the request of the Chicago, Attica & Southern Railroad, Inc., Division 4 of the Interstate Commerce Commission has dismissed that company's application for authority to operate the 59.1-mile line from Morocco, Ind., to Veedersburg, which was a part of the property of the Chicago, Attica & Southern Railroad Company. The application in Finance Docket No. 14327 had been pending nearly three years, its filing having been reported in the *Railway Age* of September 4, 1943, page 397.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—*New Board of Directors*.—With the emergence from bankruptcy of the Chicago, Indianapolis & Louisville and the election on May 1 of John W. Barriger, III, as president of that road, the following board of directors has been selected: Arthur T. Leonard, senior vice-president of the City National Bank, Chicago, chairman; Philip D. Armour, Chicago, director and chairman of the finance committee of the Borg-Warner Corporation; W. L. L. Brown, Louisville, Ky., president of the Brown-Forman Distillers Corporation; John E. Dwyer, Chicago manager of Otis & Co.; Howard Greer, Indianapolis, Ind., vice-president of Kingan & Co.; Edward L. Grady, Chicago, president of the Globe Coal Company; George W. Henley, Bloomington, Ind., lawyer and trustee of the University of Indiana; Homer J. Livingston, Chicago, executive vice-president of the First National Bank of Chicago; John J. O'Laughlin, Chicago, president of the Consumers Company; Harold A. Smith, vice-president and general counsel of the Monon; and President Barriger. Mr. Dwyer is chairman of the executive committee.

CHICAGO & NORTH WESTERN.—*Annual Report*.—Operating revenues of this road in 1945 totaled \$170,665,890, compared with \$166,966,117 in the preceding year, an increase of 2.2 per cent. Operating expenses were \$138,612,136, an increase of 17.5 per cent over the \$117,930,666 in 1944. Fixed charges were \$2,786,839, compared with \$3,781,803, a decrease of 26.3 per cent. Net income was \$14,116,780, compared with \$15,472,225, a decrease of 8.8 per cent. Current assets at the year end were \$65,290,409, compared with \$74,011,580. Current liabilities were \$38,881,088, compared with \$54,201,382. Long term debt decreased by \$2,139,974 during the year and amounted to \$169,700,997 on December 31, 1945.

A total of 257 new industries located along the lines of the road during the year. They include manufacturers of furniture and household appliances, iron and steel processing plants, building material plants, chemical and plastic plants and distributors of agricultural implements, fuel oil and gasoline bulk plants. The number of new industries located during 1945 was a seven year high. The upward trend is continuing and gives promise of substantial added revenue for the future, the report said.

CHICAGO, ROCK ISLAND & PACIFIC.—*Two New Directors Elected*.—At the annual meeting of stockholders of the Chicago, Rock Island & Pacific at Chicago on May 2, two new directors were elected. They are Richard J. Lockwood, president of the St. Louis Title Company, St. Louis, Mo.



The FRANKLIN SYSTEM of STEAM DISTRIBUTION

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on both Passenger and Freight Locomotives



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AUTOMATIC FIRE DOORS • DRIVING BOX LUBRICATORS • STEAM GRATE SHAKERS • FLEXIBLE JOINTS • CAR CONNECTION

and George E. Pike, a lawyer and industrialist of Waterloo, Iowa. They replace Marcus L. Bell, deceased, and Henry C. Brunie, resigned.

CINCINNATI, NEW ORLEANS & TEXAS PACIFIC.—*Annual Report.*—Operating revenues of this company in 1945 totaled \$33,251,383, compared with \$38,246,721 in the preceding year. Operating expenses were \$24,242,919, compared with \$23,012,600. Fixed charges were \$1,813,534, compared with \$1,815,109. Net income was \$2,320,929, compared with \$3,261,813.

GREEN BAY & WESTERN.—*Annual Report.*—Operating revenues of this road in 1945 amounted to \$2,690,666, compared with \$2,809,549 in the preceding year. Operating expenses were \$2,103,234, compared with \$2,199,182. Fixed charges were \$15,508, compared with \$20,522. Net income was \$157,889, compared with \$199,215.

ILLINOIS CENTRAL.—*Annual Report.*—Operating revenues of the Illinois Central in 1945 totaled \$236,910,946, compared with \$259,271,902 in the preceding year. Operating expenses were \$171,638,805, compared with \$167,071,958. Fixed charges were \$13,444,604, compared with \$12,833,579. Net income amounted to \$11,406,301, compared with \$17,385,616. Current assets were \$113,574,692 at the end of the year, compared with \$128,175,912. Current liabilities were \$63,030,921, compared with \$88,264,975.

During 1945, total purchases of material and equipment amounted to \$47,835,372, the principal items of which were \$11,540,218 for bituminous coal, \$4,296,457 for cross-ties, \$2,022,729 for new rail, and \$1,255,542 for ice. The total purchases were \$2,864,211 less than in 1944. Interest on the funded debt declined more than \$600,000, or 5 per cent, from 1944 to 1945, making the aggregate reduction in yearly interest \$5,687,399, as compared with the all-time high reached by the road in 1927.

ILLINOIS CENTRAL.—*Refunding.*—This road has applied to the Interstate Commerce Commission for authority to issue \$49,443,000 of 3½ per cent first and refunding mortgage bonds, series A, due July 1, 1976, to be exchanged for a like total amount of bonds of 14 other issues of the applicant and its subsidiary, the Chicago, St. Louis & New Orleans. The same application also seeks authority to issue and sell under the same mortgage \$35,000,000 series B's, due July 1, 1986, the proceeds to be used to redeem a like amount of 4 and 5 per cent refunding mortgage bonds due November 1, 1955. The B's would be sold on the basis of competitive bids.

LOUISIANA & ARKANSAS.—*Bond Redemption.*—This road has called for redemption, on June 1, all its outstanding first mortgage series A 5 per cent bonds at 103 per cent plus accrued interest.

LOUISVILLE & NASHVILLE.—*Annual Report.*—Operating revenues of the Louisville & Nashville last year were \$196,541,490, compared with \$214,779,540 in 1944. Operating expenses totaled \$146,481,015, compared with \$131,882,614. Fixed charges were \$7,223,518, compared with \$8,421,666.

Net income transferred to earned surplus was \$17,536,340, compared with \$18,607,777. Current assets at the end of the year were \$98,946,368, compared with \$136,814,594. Current liabilities were \$50,474,316, compared with \$92,957,742. Long term debt at the year end totaled \$176,395,237, compared with \$195,563,584.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—*Annual Report.*—Operating revenues of the Soo Line last year amounted to \$28,469,789, compared with \$29,886,386 in 1944. Operating expenses totaled \$22,137,767, compared with \$21,497,840. Fixed charges were \$6,502, compared with \$4,405,359. Net income was \$1,754,433, compared with \$1,038,308. Current assets at the end of the year were \$22,512,900, compared with \$22,746,891. Current liabilities were \$8,647,633, compared with \$7,328,059. Long term debt was \$25,729,330, compared with \$27,763,630.

MISSOURI PACIFIC - ST. LOUIS SOUTHWESTERN - CHICAGO, ROCK ISLAND & PACIFIC.—*Operating Agreement.*—These roads, proprietors of the Arkansas & Memphis Bridge & Terminal, have applied to the Interstate Commerce Commission for authority to enter an agreement supplemental to the existing agreement for use of the A. & M.'s bridge and other properties. The application states that the proposed supplement will make the agreement conform to the changed situation resulting from redemption by A. & M. of its former first mortgage bonds on September 1, 1945, and the issuance on that date of \$2,865,000 of first mortgage serial bonds.

PERE MARQUETTE.—*Equipment Trust Certificates.*—Division 4 of the Interstate Commerce Commission has authorized this road to assume liability for \$1,300,000 of 1½ per cent equipment trust certificates to be sold at 100.025, the bid of the Union Bank of Commerce Company and the First National Bank of Cincinnati, Ohio, which had been accepted subject to commission approval. The certificates will be dated May 1, 1946, and mature in 10 equal annual installments of \$130,000 on each May 1 from 1947 to 1956, inclusive. As noted in the *Railway Age* of April 20, page 847, they will finance in part the acquisition of equipment estimated to cost a total of \$1,690,475.

PERE MARQUETTE.—*Stockholders Approve Merger.*—Stockholders of this road, at their yearly meeting in Detroit, Mich., voted a majority of each of the company's three classes of stock for approval and adoption of the agreement to merge the Pere Marquette with the Chesapeake & Ohio. The merger proposal is being considered by the Interstate Commerce Commission, which recently completed hearings on an application for its approval. (For terms of merger, see *Railway Age*, March 16, page 592.)

READING.—*Annual Report.*—Operating revenues of this road in 1945 totaled \$109,351,508, compared with \$115,793,963 in the preceding year. Operating expenses were \$97,490,625, compared with \$82,691,229. Fixed charges were \$6,641,157, compared with \$7,398,522. Net income amounted to \$10,622,755, compared with \$7,441,589.

Current assets at the end of the year were \$44,670,455, an increase of \$2,414,146. Long term debt was \$98,971,033, a decrease of \$7,715,199.

SOUTHERN.—*Annual Report.*—Operating revenues of the Southern last year totaled \$247,536,833, compared with \$260,978,543 in 1944. Operating expenses were \$173,945,280, compared with \$156,911,480. Fixed charges were \$13,674,238, compared with \$14,323,305. Net income was \$16,298,720, compared with \$22,261,814. Current assets at the end of the year were \$123,428,163, compared with \$143,632,134. Current liabilities were \$74,806,710, compared with \$100,873,898. Long term debt totaled \$221,358,258, compared with \$238,486,657.

TEXAS & NEW ORLEANS.—*Refunding.*—This road, a subsidiary of the Southern Pacific, has sold to a syndicate headed by Kuhn, Loeb & Co., the only bidder, \$15,000,000 of series B bonds of 1970, for which the bankers bid 98½ for a 3¼ per cent coupon, and \$45,000,000 of series C bonds due in 1990, which were awarded on a bid of 98½ for a 3¾ per cent coupon. (Previous item in *Railway Age* of May 4, page 944).

WABASH.—*Trackage Rights.*—This road has applied to the Interstate Commerce Commission for authority to acquire trackage rights between Birmingham, Mo., and Union Station, Kansas City, Mo., a distance of 5.2 miles. The rights would be over tracks of the Kansas City Southern, Chicago, Milwaukee, St. Paul & Pacific and Chicago, Rock Island & Pacific.

WHEELING & LAKE ERIE.—*Annual Report.*—Operating revenues of the Wheeling & Lake Erie last year amounted to \$24,658,039, compared with \$25,101,090 in 1944. Operating expenses were \$19,571,266, compared with \$16,093,918. Fixed charges were \$559,676, compared with \$579,679. Net income totaled \$2,749,915, compared with \$3,021,382.

Average Prices Stocks and Bonds

	May 7	Last week	Last year
Average price of 20 representative railway stocks..	63.28	63.48	54.38
Average price of 20 representative railway bonds..	100.63	100.91	99.42

Dividends Declared

Catawissa.—5% 1st preferred, and 5% 2nd preferred, both semi-annually, both 75¢, payable May 23 to holders of record May 6.
Chestnut Hill.—Quarterly, 75¢, payable June 4 to holders of record May 20.
Delaware & Bound Brook.—Quarterly, 50¢, payable June 10 to holders of record June 3.
Pittsburgh, Bessemer & Lake Erie.—6% preferred, semi-annually, \$1.50, payable June 1 to holders of record May 15.

Abandonments

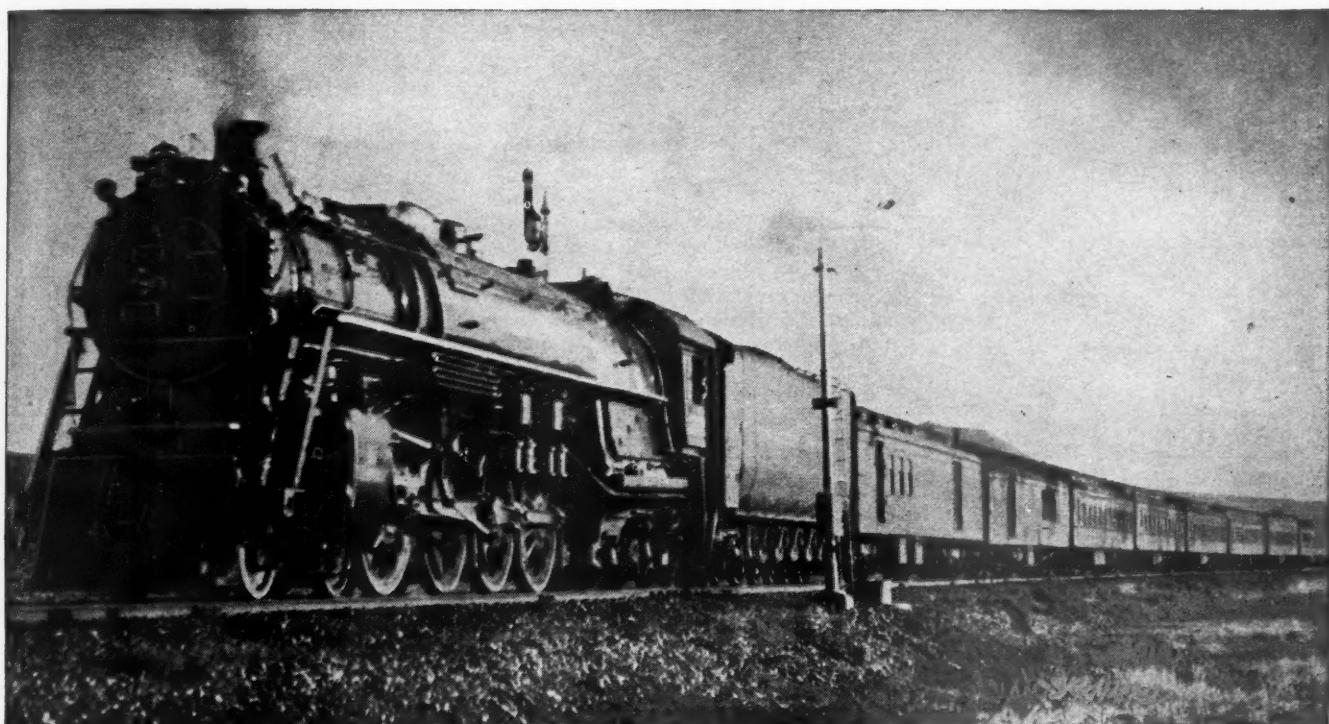
HAWAII CONSOLIDATED.—This road has applied to the Interstate Commerce Commission for authority to abandon its entire line of 81 miles on the island of Hawaii.

ONEIDA & WESTERN.—This road has applied to the Interstate Commerce Commission for authority to abandon its entire line extending from Oneida, Tenn., to Jamestown, 37.8 miles.

★ ★

To keep a locomotive at

full capacity

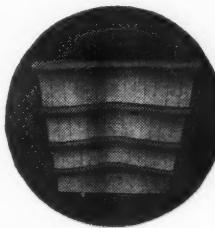


To secure all the power a locomotive is capable of producing — and to get the utmost value from every ton of coal — a complete brick arch in the fire box should always be maintained.

The heavier the train and the higher the speed, the greater are the gains from keeping the arch complete.

Whatever the type of locomotive, a Security Sectional Arch will give long service with low maintenance costs.

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EXECUTIVE

Charles A. Skog, general manager of the Grand Trunk Western, at Detroit, Mich., and vice-president of the Detroit & Toledo Shore Line, a joint subsidiary of the G. T. W. and the New York, Chicago & St. Louis, has been elected vice-president of the Grand Trunk, with the same headquarters. Mr. Skog has also been elected president of the Shore Line, succeeding **A. R. Ayers**, also general manager of the Nickel Plate, who has been named vice-president of the Shore Line, succeeding Mr. Skog.

L. H. Skinner, whose appointment as assistant vice-president of the Southern, with headquarters at Washington, D. C., was announced in the May 4 issue of *Railway Age*, was born at LaGrange, Mo., on December 2, 1883, and entered the service of the Southern in November, 1898, as a messenger at St. Louis, Mo., subsequently becoming a clerk. In April, 1905, he was



L. H. Skinner

transferred to Washington, where, after serving in various secretarial capacities, he was advanced to chief clerk, purchasing department. In March, 1920, Mr. Skinner was promoted to purchasing agent, and in January, 1927, he was appointed general purchasing agent, the post he relinquished to become assistant vice-president.

Major-General Carl R. Gray, Jr., whose election to vice-president in charge of public relations of the Chicago & North Western, with headquarters at Chicago and St. Paul, Minn., was reported in the *Railway Age* of May 4, was born at Wichita, Kan., on April 14, 1889, and was graduated from the University of Illinois in 1911. He entered railway service in that year as a yard clerk on the St. Louis-San Francisco at St. Louis, Mo., and subsequently served as car order clerk and terminal trainmaster. In the same year he became assistant engineer on the Oregon Electric and the Spokane, Portland & Seattle, and from that time until 1917 he served successively as trainmaster and

superintendent on those two roads, as assistant to the general manager of the Chicago, Burlington & Quincy, as assistant to the general superintendent of the First district of the Frisco, as engineer for the Consolidated Coal Company at Baltimore, Md., and as president of the Peach Bottom Slate Corporation at the same point. Dur-

from France he was awarded the Legion of Honor and the Croix de Guerre with two palms, and from Italy he received the order of the Crown of Italy.

FINANCIAL, LEGAL AND ACCOUNTING

F. O. Steadry, general attorney of the Chicago & North Western at Chicago, has been promoted to general claim attorney, with the same headquarters, succeeding to the duties of **Angus L. Wynn**, general claim agent, whose death on April 1 was reported in the *Railway Age* of April 6. **R. C. Bannister**, attorney, has been advanced to general attorney, with headquarters as before at Chicago, replacing Mr. Steadry.



Carl R. Gray, Jr.

ing World War I he served from May, 1917, to April, 1919, first as a captain in the United States Army and then as a colonel. From 1919 to 1928 General Gray was successively general superintendent and general manager of Montgomery, Ward & Co., Chicago, vice-president and general manager of the City Ice & Cold Storage Co., Kansas City, Mo., and vice-president of the Central Manufacturing District Bank, Chicago. On September 15, 1928, he was appointed manager of the industrial department of the North Western, with headquarters at Chicago, which position he held until July 1, 1929, when he was appointed general manager of the Chicago, St. Paul, Minneapolis & Omaha, a subsidiary of the North Western, at St. Paul, Minn. On January 1, 1930, he was elected vice-president and general manager and in August, 1937, he was elected executive vice-president. On February 1, 1939, General Gray was still holding his title of colonel of the Corps of Engineers, reserves, when he was appointed general manager of Military Railway Service, with headquarters at St. Paul, holding that position until May 15, 1942, when he was called to active duty, having previously completed a plan of railway operations in North Africa which is now generally credited with being responsible for the complete success of American railroad troops in that region. On February 9, 1943, General Gray became director general of the Military Railway Service in North Africa, Italy and southern France, and in 1945 he was elevated to the rank of major-general and the territory under his command was extended to include the entire European Theater of Operations. Because of the overwhelming success of his forces General Gray was awarded a number of decorations from the United States and European countries. These include (U. S.) the Distinguished Service medal, the Legion of Merit and the Bronze Star medal. From Great Britain he received the order of Knight Commander of the British Empire;

OPERATING

A. Mosby Harris, whose appointment as superintendent of freight transportation, Eastern region of the Pennsylvania, with headquarters at Philadelphia, Pa., was announced in the April 20 issue of *Railway Age*, was born at Dumbarston, Va., and was educated at Virginia Polytechnic Institute. He entered the service of the



A. Mosby Harris

Pennsylvania in June, 1931, as an assistant in the engineering corps, and subsequently advanced through various positions in the maintenance of way department, becoming track supervisor of the Buffalo division in 1937, then transferring to the Pittsburgh division in 1939. He was promoted to assistant superintendent of freight transportation, Western region, with headquarters at Chicago in 1941, then named division engineer of the Renovo division in 1942, from which he transferred to the Columbus division in 1944. Mr. Harris was advanced to superintendent at Logansport, Pa., later that year, and maintained this post until his recent advancement.

R. O. Jensen, assistant superintendent of the Chicago Terminal division of the Minneapolis, St. Paul & Sault Ste. Marie at Chicago, has been promoted to superintendent, with the same headquarters, succeeding **P. Bryant**, who has been transferred to the Winnipeg division, with headquarters at Thief River Falls, Minn., where he replaces **W. W. Wade**, who has

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retired after 41 years of service. **I. L. Fardal**, trainmaster at Enderlin, N. D., has been advanced to assistant division superintendent, with headquarters at Minneapolis, Minn., relieving **M. F. Sandstrom**, who in turn has been appointed trainmaster at Ironton, Minn., at his own request. Mr. Sandstrom succeeds **K. R. Bovee**, who has been transferred to Enderlin, replacing Mr. Fardal.

P. A. Wagner has been appointed acting superintendent of dining cars of the Louisville & Nashville, with headquarters at Louisville, Ky., succeeding to the duties of **A. E. Flock**, who has been granted a leave of absence due to ill health.

John A. Schwab, whose appointment as general superintendent of the Southern division of the Pennsylvania, with headquarters at Wilmington, Del., was announced in the April 20 issue of *Railway Age*, was born at Menoken, N. D., on July 26, 1903, and was graduated from the United States Military Academy at West Point, N. Y., in 1927. He entered the service of the Pennsylvania later that year as a rodman, advanced to assistant supervisor in 1928 and to supervisor in 1930. He became assistant division engineer of



John A. Schwab

the Middle division in 1934, then acting division engineer of the Eastern division in 1935, of which he was named division engineer in 1936. Mr. Schwab was promoted to superintendent of the Logansport division in 1938, transferring to the Delmarva division in 1939, then to the Buffalo division in 1941. In 1942, he went to Philadelphia, Pa., as superintendent of freight transportation; then he became superintendent of the Maryland division in 1943, and transferred to the Pittsburgh division in 1945. He held the latter post at the time of his recent appointment.

Lt. Col. Curtis A. McRee, recently returned from the armed forces and the command of the Seaboard-sponsored 772nd Railway Operating Battalion, has been appointed to his former post as superintendent of the Virginia division of the Seaboard Air Line, with headquarters at Raleigh, N. C.

TRAFFIC

Allen C. Ater, whose promotion to passenger traffic manager of the Gulf, Col-

orado & Santa Fe (part of the Santa Fe System) with headquarters at Galveston, Tex., was reported in the *Railway Age* of May 4, was born at Bertram, Tex., on March 30, 1892. He entered railway service with the Santa Fe as a clerk at



Allen C. Ater

Lometa, Tex., on August 1, 1913, subsequently serving at various points on the road as telegrapher, relief agent and agent until 1917, when he went overseas with the A.E.F., to serve in World War I. Upon his return Mr. Ater was appointed ticket agent at Galveston, and in 1920 he was advanced to traveling passenger agent, with headquarters at Houston, Tex. On June 1, 1924, he was further advanced to division passenger agent at Dallas, Tex., and on June 1, 1936, he was promoted to general passenger agent, with headquarters at Galveston, the position he held at the time of his new appointment.

Raymond T. Anderson, whose promotion to passenger traffic manager of the Atchison, Topeka & Santa Fe, with headquarters at Topeka, Kan., was reported in the *Railway Age* of May 4, was born at Carrollton, Mo., on September 3, 1895, and entered railway service with the Santa Fe



Raymond T. Anderson

on January 1, 1914, in the station forces at Dodge City, Kan., and later at Kansas City, Mo. He served in the armed forces during World War I, returning to the Santa Fe in December, 1918, when he was assigned to the office of the division superintendent at Las Vegas, N. M., subsequently being transferred to Slaton, Tex.,

and Dodge City. In 1926 Mr. Anderson was promoted to traveling agent, with headquarters at Boston, Mass., and in December, 1937, he was advanced to division passenger agent at Denver, Colo. In March, 1940, he was further advanced to general passenger agent, with headquarters at Topeka, the position he held at the time of his new promotion.

F. H. Humphreys, district freight agent for the Southern at Macon, Ga., retired on May 1 after more than 46 years' railway service.

Robert E. Spalding, commercial agent of the Southern at Detroit, Mich., has been promoted to division freight agent, with headquarters at Louisville, Ky., succeeding **A. R. Tilford**, deceased.

F. W. Nyland, assistant general traffic manager of the Delaware & Hudson, has been appointed general coal traffic manager, with headquarters as before at Albany, N. Y.

F. Neil Hiller, general freight agent of the Delaware & Hudson, has been appointed freight traffic manager in charge of rates, with headquarters as before at Albany, N. Y.

Ansley Cope, commercial agent for the Central of Georgia, with headquarters at Savannah, Ga., has been appointed general agent at Pittsburgh, Pa., succeeding **J. S. Combs**, deceased.

The Chesapeake & Ohio has announced the re-establishment of the agricultural department and the appointment of **L. B. Allen, Jr.**, recently discharged from the armed forces, as agricultural agent, with headquarters at Huntington, W. Va.

Charles H. Bruha, chief clerk to the general freight traffic manager of the Chicago, Burlington & Quincy at Chicago, has been promoted to chief of the Tariff Bureau, with the same headquarters, succeeding **L. H. Lamb**, who has retired after 50 years of service.

A. W. Ackley, New England freight agent for the Delaware & Hudson, with headquarters at Boston, Mass., has been appointed freight traffic manager in charge of solicitation and service, with offices at Albany, N. Y. **E. T. Cate** has been named to succeed Mr. Ackley as New England freight agent at Boston.

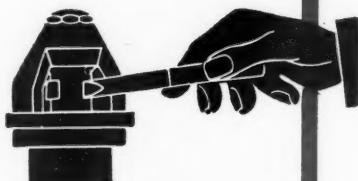
M. P. Eckman, executive representative of the Missouri Pacific at Denver, Colo., has been promoted to assistant freight traffic manager, with headquarters at St. Louis, Mo. **F. E. Pennington**, general freight and passenger agent, with headquarters at Kansas City, Mo., has been advanced to executive representative at Denver, succeeding Mr. Eckman.

A. C. Linton, acting passenger traffic manager of the Illinois Central at Chicago, has been promoted to passenger traffic manager, with the same headquarters, succeeding **J. W. Stevenson**, who has retired because of ill health, after 34 years of service. **G. R. Kimbel**, assistant general passenger agent, at Chicago, has been advanced to general passenger agent, with headquarters at New Orleans, La., the

For Many Years to Come

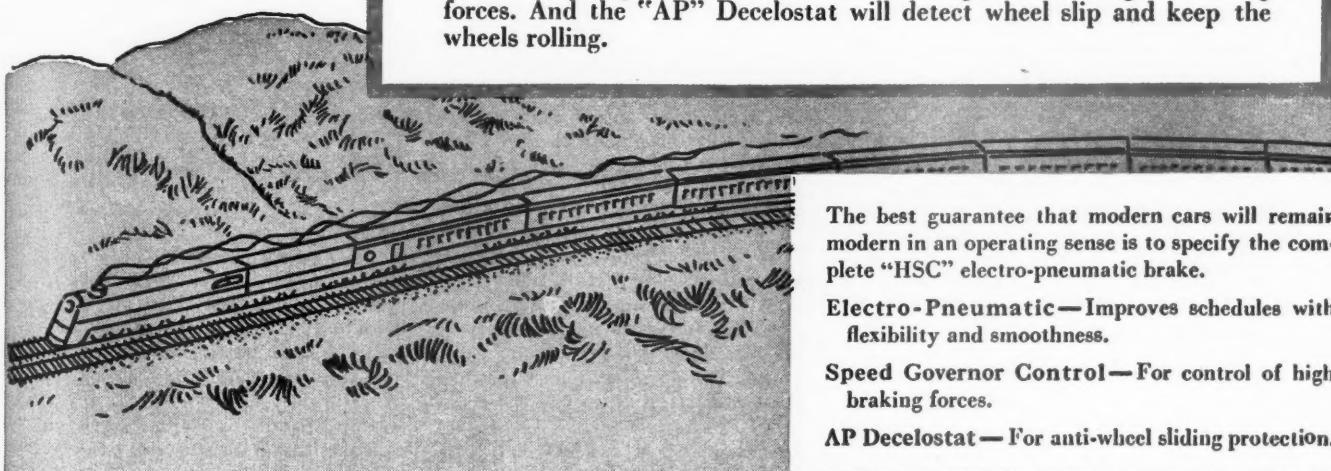
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position held by Mr. Linton before he was appointed acting passenger traffic manager. **E. L. Holmes**, district passenger agent, with headquarters at Louisville, Ky., has been promoted to assistant general passenger agent at Chicago, relieving Mr. Kimbel.

Lloyd L. Thoms, whose promotion to general freight agent of the Chicago, Rock Island & Pacific, with headquarters at Chicago, was reported in the *Railway Age* of May 4, was born at Cleveland, Ohio, and in 1937 entered the service of the Rock Island, at Chicago. In the same year he became chief clerk of that road's California headquarters at San Francisco, Cal., and on April 1, 1940, he was promoted to traveling freight traffic representative of the California coastal territory, with the same headquarters. On July 1, 1942, Mr. Thoms was advanced to general agent at Cleveland, later serving in the same capacity at Chicago and Washington, D. C. He remained in the latter location until his new appointment.

ENGINEERING & SIGNALING

Fletcher E. MacArthur, Jr., whose promotion to superintendent of telegraph on the Central Vermont, with headquarters at St. Albans, Vt., was reported in the *Railway Age* of May 4, was born at St. Albans, Vt., on October 30, 1907, and entered the service of the Central Vermont on June 1, 1927, as an electrician helper, and was later advanced to maintainer and foreman in charge of all telephone and signal installations. He entered military service as a first lieutenant and was assigned as signal officer of the 716th Railway Operating Battalion (Southern Pacific) in October, 1943. During his tour of duty he was in charge of the rehabilitation of all telephone lines and signals under the jurisdiction of the 716th Railway



Fletcher E. MacArthur, Jr.

Operating Battalion in France, Belgium, Luxembourg, and Germany. Released from the armed forces with rank of captain, he returned to the Central Vermont in December, 1945.

J. S. Webb, whose promotion to signal and telephone engineer on the Atlantic Coast Line, with headquarters at Wilmington, N. C., was reported in the *Railway*

Age of April 27, was born at Baltimore, Md., on July 22, 1893. He was graduated from the Baltimore Polytechnic Institute in June, 1912, and entered the service of the Washington Terminal Company, July 1, 1912, as a helper on signal construction, which position he held until September,



J. S. Webb

1912, when he entered the service of the Baltimore & Ohio as a lampman in the signal maintenance force, with headquarters at Havre de Grace, Md. He was promoted to batteryman in the same year. Mr. Webb left this position in May, 1913, to become a signal draftsman in the office of the signal engineer at Baltimore, Md. He was furloughed from this position on January 1, 1914, and entered the service of the United Railways & Electric Company, in the office of the chief engineer at Baltimore, Md. Mr. Webb remained there as a draftsman and transitman until April, 1916, when he re-entered the service of the Baltimore & Ohio in the office of the signal engineer as circuit draftsman. In September, 1917, he went with the signal department of the Western Maryland as chief draftsman. Mr. Webb was promoted to inspector in September, 1920, and to signal and telephone engineer on February 1, 1940. In April, 1942, he was appointed assistant superintendent of signals of the Atlantic Coast Line, and in August, 1942, he was appointed signal engineer, which position he held at the time of his recent promotion to signal and telephone engineer.

H. F. Kimball, division engineer on the Chicago, Burlington & Quincy, at Hannibal, Mo., has been appointed hydraulic engineer, with headquarters at Chicago, succeeding **C. C. Robnett**, whose promotion to assistant chief engineer, Western lines, with headquarters at Lincoln, Neb., was reported in the *Railway Age* of April 13. **R. C. Russell**, instrumentman at Aurora, Ill., becomes division engineer at Hannibal, replacing Mr. Kimball.

Hugh Everett, Jr., has been appointed assistant bridge engineer on the Southern, with headquarters at Washington, D. C.

F. R. Naylor has been appointed principal assistant engineer on the Texas & Pacific, with headquarters at Dallas, Tex.

Arthur Anderson has been appointed special assistant engineer on the New York

Central, with headquarters at Chicago. **A. M. Westenhoff** has been appointed assistant engineer of structures at Chicago.

W. B. Marshall, division engineer on the Southern, at Somerset, Ky., has been transferred to Selma, Ala., replacing **L. B. Craig**, who has been transferred to Louisville, Ky., to succeed **C. E. Price**, who in turn replaces Mr. Marshall at Somerset.

SPECIAL

Dr. M. E. W. Gooderham has been appointed chief medical officer of the Ontario Northland, with headquarters at North Bay, Ont.

L. S. Dillahunt has been appointed chief special agent of the Kansas City Southern, with headquarters at Shreveport, La., succeeding **L. O. Clinton**, who has retired.

H. T. Coleman, press relations officer for the Canadian Pacific in western Canada, has been appointed public relations officer at New York, succeeding **Paul Standard**, who has resigned after 20 years at that post.

Robert H. Howland, associated until recently with the Missouri Pacific, has been appointed advertising agent for the passenger traffic department of the Seaboard Air Line, with headquarters at Norfolk, Va.

Ralph L. Berndt, assistant general manager of the Rio Grande Motor Way (a subsidiary of the Denver & Rio Grande Western), has been promoted to general manager, with headquarters as before at Denver, Colo.

OBITUARY

Oscar E. Selby, who retired in 1938 as principal assistant engineer on the Cleveland, Cincinnati, Chicago & St. Louis, died recently at Cincinnati, Ohio.

Omar N. Spain, general passenger agent of the Chesapeake & Ohio, with headquarters at Richmond, Va., died on April 30. Mr. Spain was born on September 2, 1882, at Edenton, Ohio, and entered railway service in June, 1898, as a telegraph operator for the Baltimore & Ohio Southwestern, and went with Cincinnati, Hamilton & Dayton (now the B. & O.) in that capacity in 1900, subsequently advancing to assistant ticket agent at Cincinnati, Ohio. He joined the Chesapeake & Ohio at Cincinnati in 1904 as city passenger agent, and advanced to traveling passenger agent there in 1907. From 1917 to 1919, Mr. Spain served the American Railway Association (now the Association of American Railroads) as passenger representative for the state of West Virginia, after which he returned to the C. & O. as passenger service agent for the system. He was promoted to general eastern passenger agent, with offices at New York and Washington, D. C., in 1920, then became assistant general passenger agent at Richmond, Va., in 1929. In 1932, Mr. Spain was appointed to the position he held at the time of his death.



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Operating Revenues and Operating Expenses of Class I Steam Railways

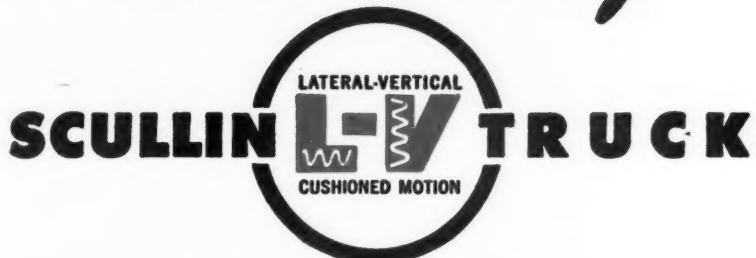
Compiled from 130 monthly reports of revenues and expenses representing 134 Class I steam railways
(Switching and Terminal Companies Not Included)
FOR THE MONTH OF FEBRUARY, 1946 AND 1945

Item	United States		Eastern District		Southern District		Western District	
	1946	1945	1946	1945	1946	1945	1946	1945
Miles of road operated at close of month [†]	227,799	228,539	55,970	56,009	43,285	43,329	128,544	129,201
Revenues:								
Freight	\$421,242,504	\$536,820,968	\$155,934,485	\$199,002,049	\$92,001,805	\$108,894,800	\$173,306,214	\$228,924,119
Passenger	114,654,662	125,856,659	48,453,495	50,594,434	20,878,189	26,718,794	45,322,978	48,543,431
Mail	9,501,999	9,818,854	3,286,946	3,273,573	1,654,978	1,758,388	4,620,075	4,786,893
Express	6,175,669	12,424,295	299,210	3,826,943	1,151,048	1,815,170	4,725,411	6,782,182
All other operating revenues	27,501,291	27,885,550	12,472,750	12,354,126	3,916,831	4,020,889	11,111,710	11,510,535
Railway operating revenues	579,136,125	712,806,326	220,446,886	269,051,125	119,602,851	143,208,041	239,086,388	300,547,160
Expenses:								
Maintenance of way and structures	79,774,895	92,302,860	28,327,386	34,266,134	17,097,465	17,157,821	34,350,044	40,878,905
Depreciation	9,965,351	9,701,077	4,319,012	4,293,947	1,590,956	1,531,615	4,055,383	3,875,515
Retirements	224,186	221,882	29,087	63,806	40,409	59,675	154,690	98,401
Deferred maintenance	*389,783	*225,772	*19,318	*31,134	*197,647	.....	*172,818	*194,638
Amortization of defense projects	*15,267	1,975,605	11,080	630,349	*19,708	373,115	*6,639	972,141
Equalization	5,487,424	6,356,762	2,705,732	3,437,291	1,177,474	1,414,721	1,604,218	1,504,750
All other	64,502,984	74,273,306	21,281,793	25,871,875	14,505,981	13,778,695	28,715,210	34,622,736
Maintenance of equipment	106,930,501	129,774,829	44,812,639	52,347,947	19,955,409	24,722,398	42,162,453	52,704,484
Depreciation	18,237,077	17,741,062	7,602,760	7,412,684	3,655,563	3,576,982	6,978,754	6,751,396
Retirements	*82,038	*3,915	*52,076	*2,484	*24,145	.....	*5,817	*1,431
Deferred maintenance and major repairs	*372,349	*106,003	*50,254	.....	*57,468	.....	*264,627	*106,003
Amortization of defense projects	500,290	17,241,020	242,421	5,667,544	78,698	4,186,481	179,171	7,386,995
Equalization	538,689	195,063	*4,555	10,319	501,156	124,813	42,088	59,931
All other	88,108,832	94,707,602	37,074,343	39,259,884	15,801,605	16,834,122	35,232,884	38,613,596
Traffic	11,968,707	11,597,584	4,353,097	4,151,751	2,320,380	2,200,568	5,295,230	5,245,265
Transportation—Rail line	225,674,501	240,558,340	99,063,786	109,949,072	39,626,508	40,936,107	86,984,207	89,673,161
Transportation—Water line	363	.....	.....	.....	.....	.....	.....	363
Miscellaneous operations	9,391,561	8,945,205	3,682,823	3,306,474	1,332,807	1,388,215	4,375,931	4,250,516
General	16,487,417	16,463,395	6,706,468	6,572,794	3,207,729	3,148,873	6,573,220	6,741,728
Railway operating expenses	450,227,582	499,642,576	186,946,199	210,594,172	83,540,298	89,553,982	179,741,085	199,494,422
Net revenue from railway operations	128,908,543	213,163,750	33,500,687	58,456,953	36,062,553	53,654,059	59,345,303	101,052,738
Railway tax accruals	59,902,268	125,768,844	16,984,492	29,083,920	16,624,231	34,126,075	26,293,545	62,558,849
Pay-roll taxes	17,614,567	18,241,414	7,386,576	7,804,108	3,162,378	3,157,358	7,065,613	7,279,948
Federal income taxes	21,902,054	83,823,397	1,941,899	11,739,072	8,979,757	25,849,331	10,980,398	46,234,994
All other taxes	20,385,647	23,704,033	7,656,017	9,540,740	4,482,096	5,119,386	8,247,534	9,043,907
Railway operating income	69,006,275	87,394,906	16,516,195	29,373,033	19,438,322	19,527,984	33,051,758	38,493,889
Equipment rents—Dr. balance	8,314,031	9,066,507	3,978,458	4,904,742	*895,671	*38,288	5,231,244	4,200,053
Joint facility rent—Dr. balance	2,887,351	3,487,713	1,384,292	1,574,756	380,577	398,781	1,122,482	1,514,176
Net railway operating income	57,804,893	74,840,686	11,153,445	22,893,535	19,953,416	19,167,491	26,698,032	32,779,660
Ratio of expenses to revenues (per cent)	77.7	70.1	84.8	78.3	69.8	62.5	75.2	66.4

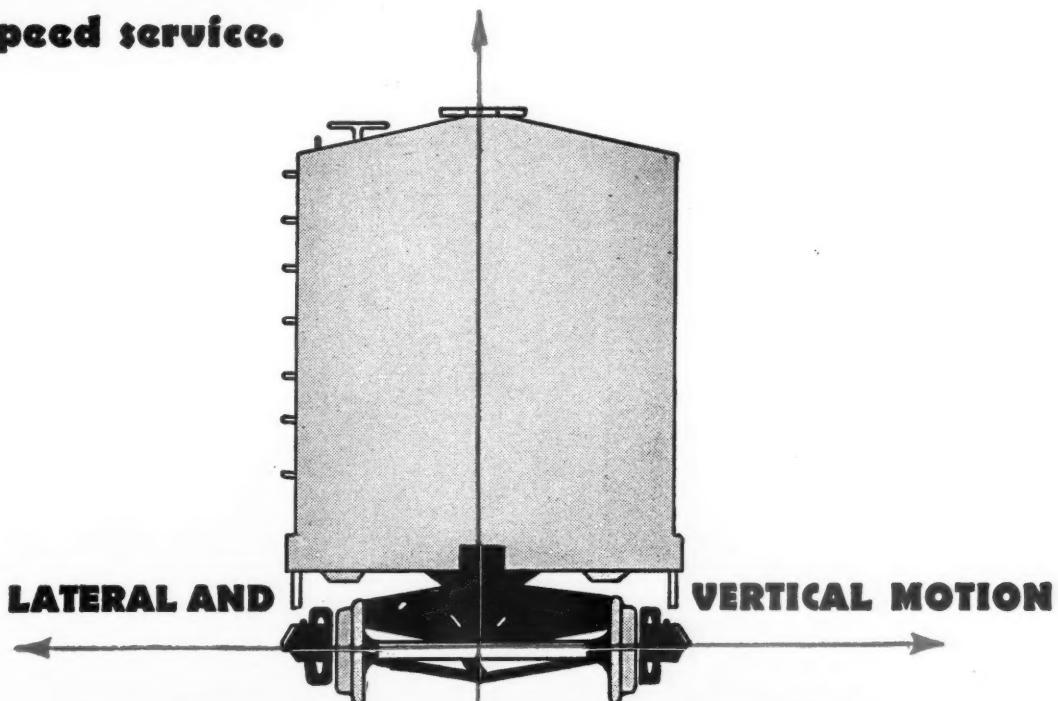
FOR TWO MONTHS ENDED WITH FEBRUARY, 1946 AND 1945

Item	227,801	228,544	55,970	56,010	43,285	43,333	128,546	129,201
Miles of road operated at close of month [†]	227,801	228,544	55,970	56,010	43,285	43,333	128,546	129,201
Revenues:								
Freight	\$874,636,801	\$1,095,693,516	\$329,470,217	\$399,436,438	\$185,068,718	\$222,392,664	\$360,097,868	\$473,864,414
Passenger	252,256,828	265,099,727	103,994,628	107,396,609	43,672,538	54,499,590	104,589,662	103,203,528
Mail	20,121,777	20,886,031	6,856,821	6,876,018	3,459,408	3,681,734	9,805,548	10,328,279
Express	14,515,958	24,489,685	1,090,466	7,191,659	2,647,489	3,691,820	10,778,003	13,606,206
All other operating revenues	58,471,572	57,974,138	26,441,039	25,560,975	8,187,988	8,504,224	23,842,545	23,908,939
Railway operating revenues	†1,220,002,936	†1,464,143,097	467,853,171	546,461,699	243,036,141	292,770,032	509,113,624	624,911,366
Expenses:								
Maintenance of way and structures	166,130,405	189,424,165	59,778,603	71,123,859	35,314,475	35,127,940	71,037,327	83,172,366
Depreciation	19,932,566	19,286,246	8,602,364	8,499,978	3,208,846	3,054,502	8,121,356	7,731,766
Retirements	1,032,263	575,695	124,137	143,107	109,026	114,114	799,100	318,474
Deferred maintenance	*882,272	*462,107	*38,508	*62,420	*379,823	.....	*463,941	*399,687
Amortization of defense projects	*88,812	4,086,386	21,100	1,240,164	*71,915	731,359	*37,997	2,114,863
Equalization	10,565,356	11,955,419	5,137,265	2,562,702	2,562,702	2,802,363	2,865,389	2,723,322
All other	135,571,304	153,982,526	45,932,245	54,873,296	29,885,639	28,425,602	59,753,420	70,683,628
Maintenance of equipment	223,762,637	266,998,130	94,587,110	108,131,005	41,193,847	50,707,741	87,981,680	108,159,384
Depreciation	36,346,793	35,549,470	15,232,083	14,910,157	7,389,349	7,157,363	13,925,361	13,481,950
Retirements	*106,121	*17,443	*58,949	\$7,755	*35,798	*4,849	*11,374	*4,839
Deferred maintenance and major repairs	*605,854	*247,603	*50,254	.....	*116,470	.....	*439,130	*247,603
Amortization of defense projects	1,056,709	34,025,030	457,862	11,195,047	209,294	8,177,902	389,553	14,652,081
Equalization	762,932	356,834	5,061	7,513	674,567	250,215	83,304	99,106
All other	186,108,178	197,331,842	79,001,307	82,026,043	33,072,905	35,127,110	74,033,966	80,178,689
Traffic	23,821,273	23,066,126	8,526,523	8,178,937	4,597,940	4,390,437	10,697,260	10,496,752
Transportation—Rail line	472,717,886	497,490,762	207,831,987	224,877,553	81,844,250	84,791,016	183,041,649	187,822,193
Transportation—Water line	34,046,971	33,725,089	13,764,696	13,564,599	6,659,758	6,456,771	13,622,517	13,703,719
Miscellaneous operations	19,815,804	19,171,045	7,711,504	7,126,285	2,823,243	3,080,130	9,281,057	8,964,630
General	34,046,971	33,725,089	13,764,696	13,564,599	6,659,758	6,456,771	13,622,517	13,703,719
Railway operating expenses	940,295,426	1,029,875,762	392,200,423	433,002,238	172,433,513	184,554,035	375,661,490	412,319,489
Net revenue from railway operations	279,707,510	434,267,335	75,652,748	113,459,461	70,602,628	108,215,997	133,452,134	212,591,877
Railway tax accruals	129,126,055	256,251,376	38,136,177	56,316,849	32,903,903	68,879,189	58,085,975	131,055,338
Pay-roll taxes	36,891,280	37,713,651	15,453,011	16,025,828	6,601,312	6,546,162	14,836,957	15,141,661
Federal income taxes	47,317,182	171,415,456	3,522,131	21,703,310	17,351,375	52,112,374	26,443,676	97,598,872
All other taxes	44,917,593	47,122,269	19,161,035	18,587,711	8,951,216	10,219,753	16,805,342	18,314,805
Railway operating income	150,581,455	178,015,959	37,5					

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Freight Operating Statistics of Large Steam Railways—Selected

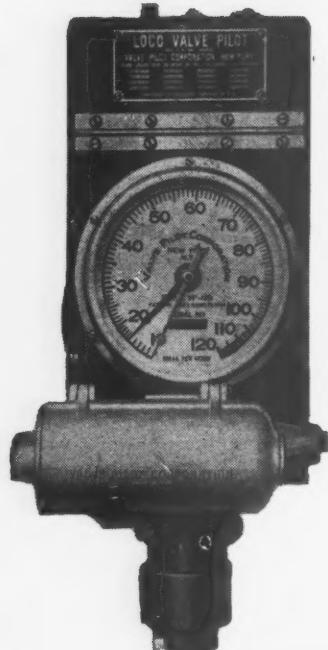
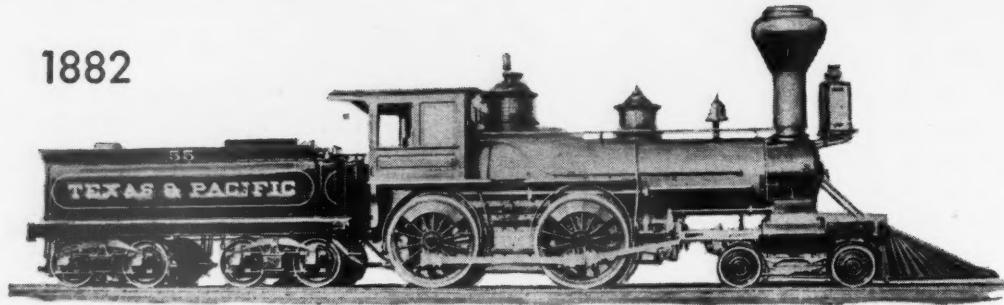
Region, road, and year	Miles of road operated	Train-miles	Locomotive-miles		Car-miles		Ton-miles (thousands)		Road locos. on line			
			Principal	helper	Loaded (thous-ands)	Per cent loaded	Gross excl. locos. & tenders	Net-rev. and non-rev.	Serviceable	Unstored	Stored	
									B. O.		Per cent B. O.	
New England Region:												
Boston & Albany	1946	362	146,637	164,183	32,389	3,267	68.6	201,138	85,971	69	—	15 17.9
	1945	362	143,433	160,063	23,082	3,080	68.6	196,328	87,705	80	..	12 13.0
Boston & Maine	1946	1,752	311,001	328,656	17,546	11,606	71.6	718,524	321,832	119	1	13 9.8
	1945	1,777	346,215	377,031	24,230	12,869	70.6	822,975	375,377	150	2	19 11.1
N. Y., New H. & Hart. [†]	1946	1,815	370,036	536,771	37,808	13,584	72.1	790,577	347,375	200	28	53 19.5
	1945	1,815	446,497	569,343	49,420	17,014	72.3	1,013,022	459,819	249	5	40 19.9
Great Lakes Region:												
Delaware & Hudson	1946	846	279,116	345,430	35,765	11,818	66.3	865,693	462,378	116	58	27 13.4
	1945	846	301,939	395,274	41,829	13,385	71.4	923,846	498,502	135	46	38 17.4
Del., Lack. & Western	1946	971	284,730	320,220	38,628	11,962	71.3	766,611	356,546	125	33	15 8.7
Erie	1946	2,242	702,497	748,494	61,745	31,844	63.8	2,123,991	897,211	269	49	68 17.6
	1945	2,243	869,576	947,118	71,340	41,811	69.5	2,679,361	1,216,387	348	2	60 14.6
Grand Trunk Western	1946	1,026	233,990	246,116	1,578	7,059	71.5	438,536	197,904	62	..	12 16.2
	1945	1,026	256,887	266,003	3,002	8,859	73.1	548,404	258,590	73	2	8 9.6
Lehigh Valley	1946	1,242	281,578	306,533	45,230	11,642	65.5	812,224	392,079	114	29	26 15.4
	1945	1,247	420,203	457,018	64,161	18,236	64.6	1,265,581	609,516	153	16	9.5
New York Central	1946	10,328	3,197,253	3,436,277	232,095	110,415	62.4	7,714,512	3,548,134	1,091	15	306 21.7
	1945	10,331	3,197,434	3,430,710	236,753	117,994	66.5	8,075,008	3,891,060	1,114	10	283 19.0
New York, Chi. & St. L.	1946	1,656	592,131	598,827	8,730	21,978	67.1	1,401,765	604,758	152	15	22 11.6
	1945	1,656	712,795	728,110	11,316	28,588	70.3	1,863,386	888,578	176	2	23 11.4
Pere Marquette	1946	1,915	352,282	366,673	9,532	10,982	65.6	756,225	355,573	124	8	30 18.5
	1945	1,915	389,759	400,685	11,256	13,927	73.1	898,250	445,905	143	..	21 12.8
Pitts & Lake Erie	1946	229	79,777	80,649	97	3,203	57.2	284,507	157,581	32	3	14 28.6
	1945	229	80,699	84,460	268	3,272	66.5	269,485	157,701	24	..	16 40.0
Wabash	1946	2,381	624,693	645,513	15,514	20,965	70.8	1,341,939	601,872	160	13	35 16.8
	1945	2,381	668,461	688,641	17,472	25,203	74.9	1,583,523	761,750	178	..	36 16.8
Central Eastern Region:												
Baltimore & Ohio	1946	6,103	1,891,410	2,356,234	267,641	62,509	63.6	4,488,880	2,192,491	844	25	298 25.5
	1945	6,099	2,206,215	2,701,587	279,344	76,617	68.4	5,292,169	2,656,947	943	3	215 18.5
Central of New Jersey [†]	1946	649	161,244	191,230	42,863	5,646	65.4	413,181	219,805	108	..	46 29.9
	1945	654	207,682	241,753	52,413	7,951	64.0	570,798	285,970	118	2	27 18.4
Chicago & Eastern Ill.	1946	910	174,860	177,148	4,486	4,767	70.8	319,712	158,502	58	1	21 26.3
	1945	912	205,979	208,109	4,275	5,777	65.0	396,470	188,243	66	5	8 10.1
Elgin, Joliet & Eastern	1946	392	96,514	101,303	3,201	2,693	66.6	199,505	105,391	43	4	28 37.3
	1945	392	127,987	132,762	4,643	3,739	66.7	289,068	157,117	63	..	14 18.2
Long Island	1946	372	32,420	34,329	16,158	404	57.6	28,347	12,270	49	..	3 5.8
	1945	372	29,214	30,821	15,218	350	58.9	24,392	10,935	47	..	2 4.1
Pennsylvania System	1946	10,033	3,715,966	4,336,254	588,929	133,116	61.6	9,610,360	4,501,215	1,882	29	280 12.8
	1945	10,024	4,108,110	4,809,955	644,933	162,965	67.7	10,970,089	5,415,661	2,068	..	177 7.9
Reading	1946	1,361	490,637	541,765	60,936	15,740	64.2	1,228,147	670,806	261	3	59 18.3
	1945	1,365	565,296	627,445	71,806	19,282	68.2	1,380,434	767,182	275	5	54 16.2
Pocahontas Region:												
Chesapeake & Ohio	1946	3,045	1,064,898	1,161,314	57,731	48,217	57.0	4,149,792	2,392,924	461	4	74 13.7
	1945	3,036	1,134,831	1,241,376	56,755	50,871	57.9	4,289,337	2,443,013	458	2	73 13.7
Norfolk & Western	1946	2,139	713,949	769,245	64,416	31,890	58.4	2,772,329	1,504,932	60	22	6.7
	1945	2,132	844,616	927,879	81,209	39,043	60.6	3,291,417	1,783,087	295	5	17 5.4
Southern Region:												
Atlantic Coast Line	1946	5,552	1,110,655	1,127,297	16,104	27,051	62.5	1,810,708	783,018	394	6	29 6.8
	1945	5,557	1,212,640	1,234,500	17,206	33,139	61.4	2,239,877	968,519	417	4	34 7.5
Central of Georgia [†]	1946	1,783	287,642	293,138	5,588	7,223	74.7	450,093	213,283	97	..	6 5.8
Gulf, Mobile & Ohio	1946	1,931	325,776	394,474	1,727	10,719	71.1	706,540	335,817	102	3	14 11.8
	1945	1,932	254,530	329,022	1,493	9,612	80.4	589,073	297,428	106	5	10 8.3
Illinois Central (incl. Yazoo & Miss. V.)	1946	6,605	1,412,951	1,425,547	52,127	50,164	64.2	3,476,617	1,631,907	612	18	78 11.0
	1945	6,606	1,468,916	1,494,419	28,539	55,360	67.2	3,741,977	1,807,602	655	..	57 8.0
Louisville & Nashville	1946	4,749	1,416,463	1,539,948	43,417	36,204	62.8	2,613,108	1,335,363	386	18	77 16.0
	1945	4,746	1,553,166	1,703,293	45,382	40,803	66.2	2,857,327	1,483,750	419	2	59 12.3
Seaboard Air Line*	1946	4,139	869,187	917,487	16,478	25,154	66.4	1,646,801	698,745	280	..	53 15.9
	1945	4,163	894,461	964,358	15,090	26,116	67.6	1,718,350	744,256	295	..	47 13.7
Southern	1946	6,450	1,913,420	1,943,587	33,516	44,406	70.4	2,774,194	1,275,133	583	12	134 18.4
	1945	6,471	2,126,262	2,161,583	36,772	48,968	70.9	3,086,372	1,442,564	594	..	89 13.0
Northwestern Region:												
Chi. & North Western	1946	8,062	1,030,071	1,064,168	25,811	30,190	65.4	2,052,474	950,985	381	7	132 25.4
	1945	8,069	959,918	1,000,582	22,303	30,837	73.4	1,996,451	986,784	363	10	118 24.0
Chicago Great Western	1946	1,445	264,217	267,856	12,201	8,164	70.7	528,091	233,00	68	..	14 17.1
	1945	1,445	265,096	270,195	8,202	8,394	74.6	531,339	246,798	71	..	9 11.3
Chi., Mil., St. P. & P.	1946	10,725	1,372,096	1,461,768	65,182	44,404	66.5	2,998,379	1,397,406	511	22	78 12.8
	1945	10,714	1,419,189	1,513,761	67,780	50,203	72.6	3,250,441	1,606,281	518	41	71 11.3
Chi., St. P., Minneap. & Om.	1946	1,606	221,082	240,136	15,967	5,594	66.7	389,455	174,631	91	14	26 19.8
	1945	1,606	197,326	212,436	12,160	5,090	72.9	339,176	162,843	91	..	34 28.3
Duluth, Missabe & I. R.	1946	546	27,340	27,457	369	427	55.2	29,791	13,404	24	9	28 45.9
	1945	546	29,066	29,477	668	480	58.9	32,466	15,644	26	17	17 28.3
Great Northern	1946	8,235	1,076,171	1,083,039	52,684	33,924	60.2					

Items for the Month of February 1946 Compared with February 1945

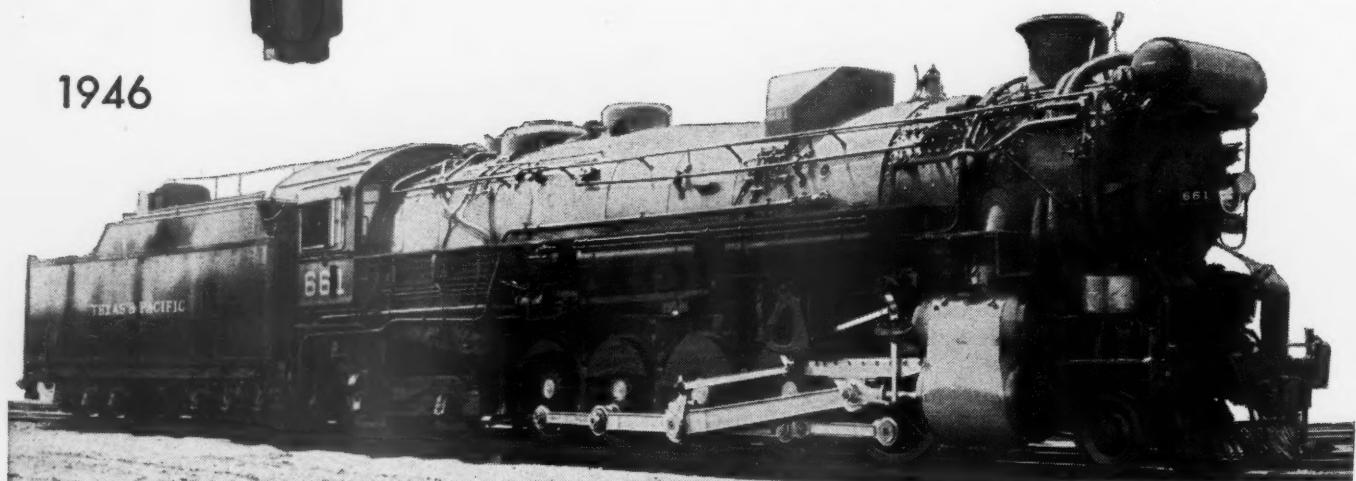
Region, road, and year	Freight cars on line			Per Cent B. O.	G.t.m. per train-hr. excl. locos. and tenders	G.t.m. per train-mi. excl. locos. and tenders	Net ton-mi. per train- mile	Net ton-mi. per car- mile	Net ton-mi. per car- day	Car miles per car- day	Net ton-mi. per road-mi.	Coal lb. per g.t.m.	Mi. per loco. per day	
	Home	Foreign	Total											
New England Region:														
Boston & Albany	1946	332	4,988	5,320	0.4	20,910	1,383	591	26.3	562	31.2	8,482	213	87.6
	1945	213	7,467	7,680	0.3	17,783	1,405	628	28.55	440	22.5	8,653	221	81.2
Boston & Maine	1946	1,912	14,447	16,355	2.3	31,278	2,317	1,038	27.7	733	36.9	6,561	115	101.1
N. Y., New H. & Hart.†	1946	1,948	17,500	19,448	2.1	32,588	2,389	1,090	29.2	807	39.2	7,544	119	90.6
	1945	2,207	20,007	22,814	3.7	28,180	2,145	942	25.6	553	30.0	6,835	103	80.9
	1945	2,300	32,142	34,442	2.6	27,708	2,282	1,036	27.0	539	27.6	9,048	115	86.5
Great Lakes Region:														
Delaware & Hudson	1946	2,780	7,025	9,805	3.6	50,575	3,118	1,665	39.1	1,769	68.2	19,520	122	67.3
	1945	3,330	8,958	12,288	2.8	45,701	3,077	1,661	37.2	1,521	57.2	21,044	127	75.1
Del., Lack. & Western	1946	4,995	13,307	18,302	4.5	40,042	2,725	1,267	29.8	726	34.2	13,114	130	82.1
	1945	5,049	18,180	23,229	3.1	32,364	2,736	1,324	31.3	666	29.3	15,661	151	90.6
Erie	1946	8,660	24,300	33,020	3.8	50,130	3,042	1,285	28.2	949	52.8	14,292	109	81.5
	1945	9,008	37,288	46,296	3.0	41,564	3,116	1,415	29.1	924	45.7	19,368	113	95.9
Grand Trunk Western	1946	3,213	8,022	11,235	5.2	37,014	1,881	849	28.0	638	31.8	6,889	103	129.0
	1945	1,241	10,013	11,859	3.2	39,716	2,161	1,019	29.2	818	38.3	9,001	94	124.5
Lehigh Valley	1946	6,569	14,142	20,711	4.1	49,169	2,963	1,430	33.7	652	29.6	11,274	116	78.6
	1945	5,644	25,798	31,442	1.8	37,343	3,113	1,499	33.4	659	30.5	17,457	126	116.2
New York Central	1946	49,959	106,255	156,214	3.9	36,738	2,449	1,126	32.1	812	40.5	12,269	123	104.4
	1945	42,916	133,799	176,715	2.6	34,848	2,567	1,237	33.0	785	35.8	13,451	121	106.8
New York, Chi. & St. L.	1946	3,048	12,287	15,335	3.4	44,444	2,382	1,027	27.5	1,394	75.5	13,043	101	121.5
	1945	1,887	18,158	20,045	1.9	42,992	2,636	1,257	31.1	1,611	73.8	19,164	95	137.1
Pere Marquette	1946	4,469	11,825	16,294	4.9	38,032	2,168	1,019	32.4	820	38.6	6,631	105	89.3
	1945	1,681	12,297	13,978	1.9	40,757	2,339	1,161	32.0	1,191	50.9	8,316	101	95.3
Pitts & Lake Erie	1946	3,228	6,235	9,463	5.1	54,048	3,566	1,975	49.2	496	17.6	24,576	91	61.3
	1945	1,919	8,599	10,518	3.9	42,674	3,344	1,957	48.2	477	14.9	24,595	112	81.3
Wabash	1946	5,874	13,748	19,622	4.7	40,607	2,175	975	28.7	1,080	53.1	9,028	127	118.6
	1945	5,144	16,903	22,047	2.7	43,000	2,387	1,148	30.2	1,323	58.4	11,426	121	122.7
Central Eastern Region:														
Baltimore & Ohio	1946	37,304	47,837	85,141	5.2	29,736	2,434	1,189	35.1	898	40.2	12,830	168	83.4
	1945	31,574	54,988	86,562	3.8	28,262	2,455	1,233	34.7	1,048	44.2	15,558	164	94.6
Central of New Jersey†	1946	4,803	13,837	18,640	6.4	29,956	2,673	1,422	38.9	4118	16.4	12,096	138	71.5
	1945	3,938	15,335	19,273	4.1	30,542	2,774	1,390	36.0	528	23.0	15,617	128	89.3
Chicago & Eastern Ill.	1946	2,367	3,921	6,288	5.8	32,190	1,856	920	33.2	914	38.8	6,221	136	86.1
	1945	1,754	3,714	5,468	4.4	33,608	1,976	938	32.6	1,194	56.4	7,372	136	98.1
Elgin, Joliet & Eastern	1946	8,067	7,720	15,787	2.1	16,942	2,246	1,187	39.1	251	9.6	9,602	172	70.7
	1945	8,143	8,029	16,172	2.1	16,103	2,392	1,300	42.0	337	12.0	14,315	151	97.9
Long Island	1946	47	5,653	5,700	.8	6,643	896	388	30.4	78	4.4	1,178	351	50.0
	1945	29	5,849	5,878	.3	6,375	856	384	31.2	67	3.7	1,050	341	47.1
Pennsylvania System	1946	127,948	111,563	239,511	6.4	36,075	2,663	1,247	33.8	658	31.6	16,023	135	86.9
	1945	122,383	143,736	266,119	3.4	31,082	2,774	1,370	33.2	733	32.6	19,295	144	95.2
Reading	1946	11,585	25,216	36,801	2.8	31,419	2,510	1,371	42.6	633	23.1	17,603	124	77.8
	1945	10,465	26,657	37,122	2.4	32,560	2,444	1,358	39.8	753	27.8	20,073	127	86.6
Pocahontas Region:														
Chesapeake & Ohio	1946	35,714	16,447	52,161	1.7	55,802	3,965	2,286	49.6	1,684	59.5	28,066	86	88.5
	1945	31,257	15,707	46,964	1.5	51,851	3,842	2,188	48.0	1,876	67.5	28,739	89	85.2
Norfolk & Western	1946	29,611	8,148	37,759	1.2	61,317	3,944	2,141	47.2	1,476	53.5	25,127	97	97.6
	1945	25,407	10,394	35,801	.5	58,004	3,949	2,139	45.7	1,802	65.1	29,869	100	119.2
Southern Region:														
Atlantic Coast Line	1946	8,871	21,606	30,477	2.0	26,913	1,642	710	28.9	886	49.0	5,037	125	102.5
	1945	8,298	25,436	33,734	1.7	29,423	1,858	804	29.2	1,033	57.5	6,225	117	102.7
Central of Georgia†	1946	1,653	6,960	8,613	1.6	28,679	1,567	743	29.5	885	40.1	4,272	148	111.1
	1945	1,699	7,713	9,412	.9	29,705	1,657	783	31.0	1,058	48.6	5,588	140	135.0
Gulf, Mobile & Ohio	1946	1,716	7,320	9,036	1.2	38,664	2,179	1,036	31.3	1,362	61.1	6,211	114	124.7
	1945	1,522	6,510	8,032	.9	39,808	2,320	1,171	30.9	1,309	52.6	5,498	118	104.2
Illinois Central (incl. Yazoo & Miss. V.)	1946	15,120	39,206	54,326	1.6	39,689	2,527	1,186	32.5	1,098	52.6	8,824	137	79.5
	1945	16,444	32,912	49,356	1.1	41,720	2,618	1,265	32.7	1,310	59.7	9,773	128	79.5
Louisville & Nashville	1946	26,276	15,362	41,638	4.8	28,271	1,845	943	36.9	1,145	49.4	10,042	138	123.1
	1945	25,446	16,264	41,710	4.2	27,769	1,840	955	36.4	1,229	51.1	11,165	141	134.0
Seaboard Air Line*	1946	6,245	19,625	25,870	2.0	32,700	1,932	820	27.8	969	52.5	6,029	126	110.9
	1945	5,639	19,891	25,620	2.1	33,223	1,977	856	28.5	1,045	54.3	6,385	123	111.1
Southern	1946	15,584	35,680	51,264	4.8	24,389	1,470	676	28.7	893	44.2	7,961	155	103.0
	1945	15,715	33,408	51,512	2.7	23,569	1,473	689	29.1	1,073	51.4	7,961	158	118.8
Northwestern Region:														
Chi. & North Western	1946	19,586	37,226	56,812	4.5	30,371	2,080	964	31.5	593	28.8	4,213	155	82.1
	1945	18,677	26,348	45,025	3.3	32,750	2,147	1,061	32.0	735	31.3	4,368	138	81.2
Chicago Great Western	1946	1,087	6,261	7,348	3.8	31,322	2,009	887	28.5	1,113	55.2	5,759	147	129.7</

Then and Now

1882



1946



In her day No. 55 was a fine example of good workmanship and progressive locomotive design, but she lacked the means to help the engineman operate to the best advantage.

Since then Texas and Pacific motive power has kept pace with the times and requirements as exemplified by its Valve Pilot equipped modern power.

On these locomotives the engineman is guided to the use of the right cut off to suit existing conditions and the Valve Pilot records the result.

VALVE PILOT CORPORATION

230 Park Avenue, New York 17, N. Y.